HD RADIO TUNER

KTC-HR100

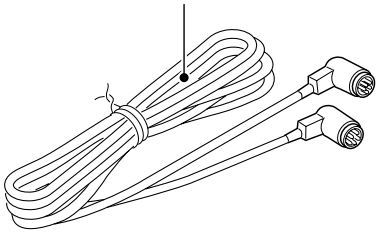
SERVICE MANUAL

KENWOOD

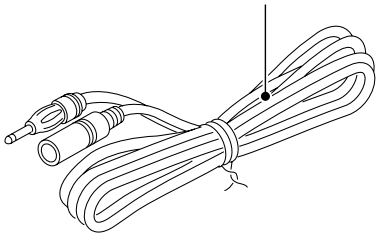
© 2003-9 PRINTED IN JAPAN
B53-0094-00 (N) 1424

Metallic cabinet
(A01-2830-02)

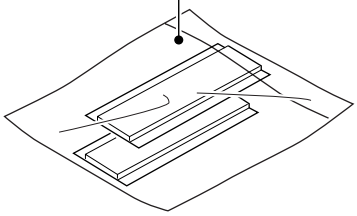
Cord with plug
(E30-4291-05)



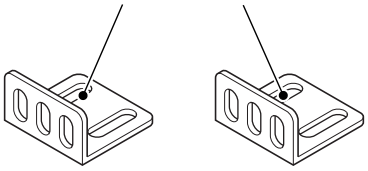
Cord with plug
(E30-4953-05)



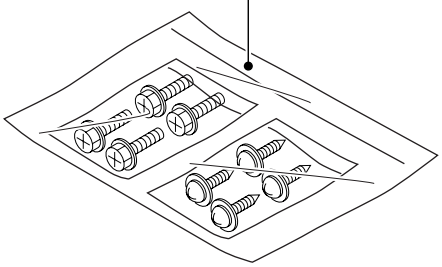
Magic tape
(H30-0051-05)



Mounting hardware
(J21-3801-04)



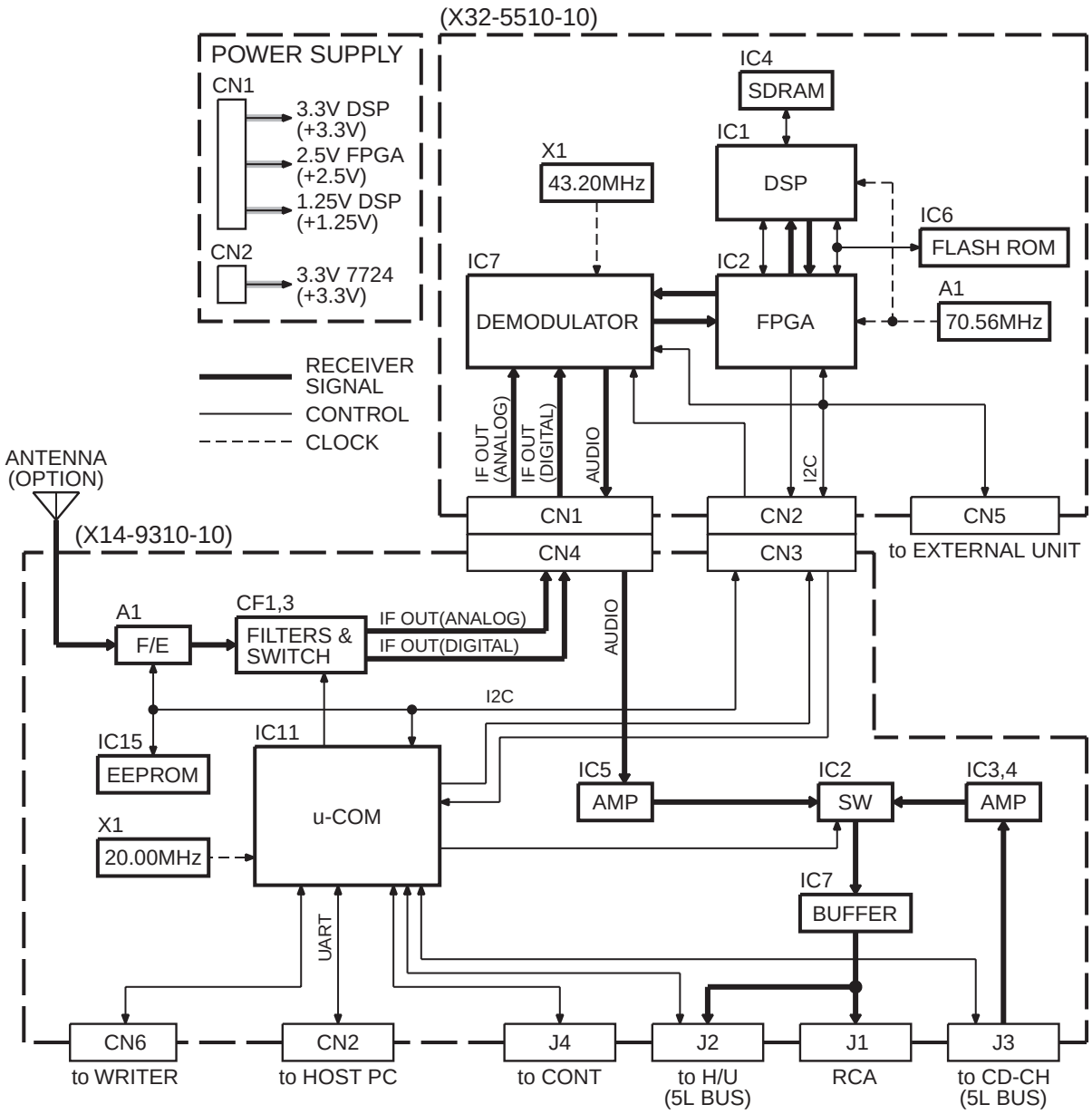
Screw set
(N99-1623-05)

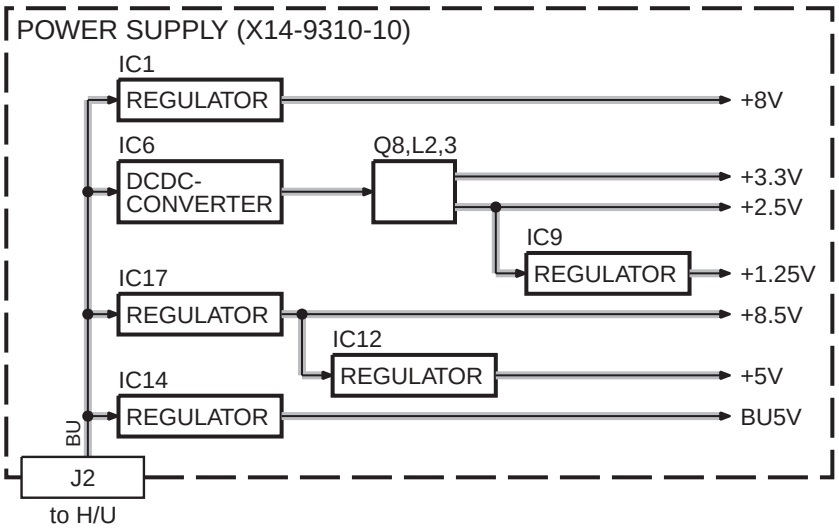


CAUTION (Repair of PROCESSOR UNIT)
You can not repair IC1 (TMSDRI200CGLZ5).
If you can repair those parts please change to PROCESSOR UNIT (X32-5510-10)

40%

BLOCK DIAGRAM





COMPONENTS DESCRIPTION

● DIGITAL TUNER UNIT (X14-9310-10)

Ref. No.	Application/Function	Operation/Condition/Compatibility
IC1	8V regulator	Power supply for audio system
IC2	Analog Switch	Audio Switch
IC3,4	Op-amp	Audio amp 2 for CD-CH signal
IC5	Op-amp	Audio amp 2 for demodulated signal
IC6	DC/DC converter control	Power supply for 3.3,2.5V
IC7	Op-amp	Buffer amp for audio signal
IC8	Op-amp	Convert for audio bias circuit
IC9	1.25V regulator	Power supply for IDM
IC11	μ-com	-
IC12	5V regulator	Power supply for A1 (tuner module)
IC13	Reset IC	-
IC14	5V regulator	Power supply for BU 5V
IC15	1kbit EEPROM	Back-up data memory
IC16	Dual 2 input OR GATE	-
IC17	8.5V regulator	Power supply for A1 (tuner module)
IC18	Op-amp	Comparator for voltage detect
Q1	Mute	For right mute
Q2,3	SW	For main power supply SW
Q4	Mute	For left mute
Q5	SW	For mute on : mute
Q6,7	SW	For audio source switch
Q8	DC/DC converter	For 3.3,2.5V power supply
Q10	SW	For B.U detect on : detect
Q11	SW	For B.U detect on : no-detect
Q12	Inverter	For B.U detect mute
Q14	SW	For 5L CH-CON signal
Q16	SW	For reset
Q17	SW	For CD-CH reset
Q18	Amplifier	IF amp 2
Q19	Amplifier	Signal Amp 2 for AM-IF signal (narrow band)
Q20	Inverter	For AM filter
Q21	Inverter	For FM filter
Q22	Amplifier	Signal Amp for FM-IF signal (wide band)
Q23	Amplifier	Signal Amp for AM-IF signal (wide band)
Q24	Amplifier	Signal Amp for FM-IF signal (narrow band)
Q25	Amplifier	Signal Amp 1 for AM-IF signal (narrow band)
Q26	SW	For FM filter
Q27	5v to/from 3.3v level converter	For I2C data
Q28	5v to 3.3v level converter	For I2C clock
Q29	Amplifier	IF amp 1
Q33	SW	For AM filter
Q35	SW	For B.U detect mute on : mute
Q36	Level converter	For Blend signal
Q37	SW	For tuner I2C SCL signal

COMPONENTS DESCRIPTION

Ref. No.	Application/Function	Operation/Condition/Compatibility
Q38	SW	For tuner I2C SDA signal
Q39	SW	For DC-DC controller CS signal
D1	Diode	Protect for a wrong connection
D2,4,6,17,20,21	Zenner diode	Protect for irregularly voltage input
D3,5	Diode	Protect for irregularly voltage input
D7	Diode	Divider for left and right mute circuit
D8	Rectifier diode	For controller voltage
D9,10	OR gate	For mute
D11	Zenner diode	Protect for irregularly voltage input
D13	OR gate	For mute
D14	Zenner diode	Reference voltage for audio bias voltage
D15,16	Schottly barrier diode	For DC/DC converter
D18,19	Diode	Protect for B.U voltage detect circuit
D22,23	Zenner diode	For B.U voltage detect
D25	Diode	Protect for a wrong voltage phenomenon
D26,27,29,30	Zenner diode	Protect for irregularly voltage input
D28	Diode	Reference voltage for regulator
D31	Rectifier diode	For B.U 5V
D32	Diode	Protect for irregularly voltage input
D34	OR gate	For interrupt
D35	Diode	Force for nomal voltage level
D37	OR gate	For mute
D38	Diode	For Controller Power

● PROCESSOR UNIT (X32-5510-10)

Ref. No.	Application/Function	Operation/Condition/Compatibility
IC1	DSP	Digital demodulator, Audio decoder
IC2	FPGA	For interface between IC5 and DSP
IC4	Flash Memory	Program data for DSP and FPGA
IC6	64M SDRAM	DSP work area
IC7	Demodulator	AM FM Analog demodulator and Digital Audio interface
Q1	Voltage Regulator	Core voltage supply for IC7 (+2.5V)
D1	LED	This LED is toggled by the DSP software at a rate of approximately (200ms) to indicate that it is operational.
D2	Diode	Voltage converter for RESET signal
D3	LED	For DC+3.3 [V] power supply check
D4	LED	This LED will blink continuously if the FPGA is configured correctly.
D6	Diode	Voltage protection for DSP

MICROCOMPUTER'S TERMINAL DESCRIPTION

● **MICROCOMPUTER : 70F3030BYGC1R9 (X14 : IC11)**

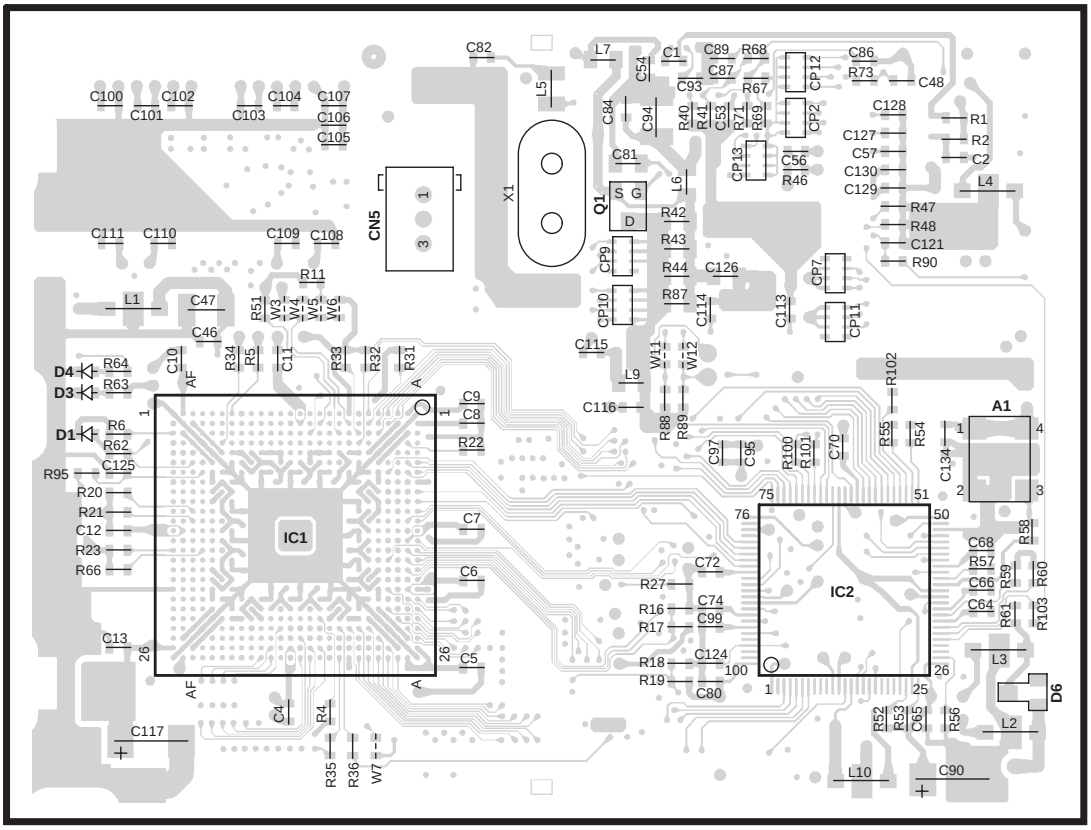
Pin No.	I/O	Pin Name	Function	Processing Operation Description
1	O	NC	Not connect	
2	O	SCK	I2C clock output	
3	O	RX	UART input	
4	O	TX	UART output	
5	O	NC	Not connect	
6	-	EVDD	Power supply for port	
7	-	EVSS	Ground for port	
8,9	O	NC	Not connect	
10	O	MUTE1	5L I/F to H/U	
11	O	REQC1	5L I/F to H/U	
12	I	DATA_I	Data input from outside driver IC	
13	O	DATA_O	Data output to outside driver IC	
14	O	LCD_CLK	Clock output to outside driver IC	
15	O	LCD_CE	Chip enable for outside driver IC	
16	O	LCD_RST	Reset for outside driver IC	
17	O	NC	Not connect	
18	I	IC/VPP	For write program enable	H : write mode, L : normal
19	O	RELAY	Audio source selection	H : CD-CH, L : HD-RADIO
20	O	A_MUTE	Audio mute output	H : normal, L : mute on
21	O	PON_M	Output for power on main	H : power on, L : power off
22	O	PON_A	Output for power on audio	H : power on, L : power off
23~30	O	NC	Not connect	
31	I	RESET	Reset input	H : not reset, L : reset
32	I	-	Un-use (pull down)	
33	-	NC	Not connect	
34	-	-	Capacitor connection for regulator stabilization	
35	-	X2	Resonator connection for main clock	
36	I	X1	Resonator connection for main clock	
37	-	VSS	Ground	
38	-	VDD	Power supply	
39~54	O	NC	Not connect	
55	-	BVDD	Power supply for BUS interface	
56	-	BVSS	Ground for BUS interface	
57	O	TU_I2C_SW	Data output for tuner I2C on / off switching	L : off, H : on
58	I	BLEND	Data input for digital / analog switching	L : analog, H : digital
59	O	7724_BLEND	Data output for digital / analog switching	L : analog, H : digital
60	O	IDM_RESET	Reset for IDM	L : reset, H : normal
61	O	FM_ON	Output for FM filter power control	L : filter off, H : filter on
62	O	AM_ON	Output for AM filter power control	L : filter off, H : filter on

MICROCOMPUTER'S TERMINAL DESCRIPTION

Pin No.	I/O	Pin Name	Function	Processing Operation Description
63~67	O	NC	Not connect	
68	I	MUTE2	Mute input from CD-CH	
69	O	REQH2	5L I/F to CD_CH	
70	O	CHCON2	5L I/F to CD_CH	
71	-	AVDD	Analog power supply	
72	-	AVSS	Analog ground	
73	I	AVREF	Analog reference voltage	
74	I	AM/FM LEVEL	Connected to antennna detection signal	H : normal (detect), L : not detect
75~85	I	-	Un-use (pull down)	
86	O	NC	Not connect	
87	I	BUP1	Back-up voltage detect	H : not detect (ok), L : detect
88	I	KEY_INT	Request from outside driver IC	
89	I	CHCON1/STBY	5L I/F from H/U	
90	I	BUP2	Back-up voltage detect (high)	H : detect, L : not detect (ok)
91	I	REQC2	5L I/F from CD_CH	
92	I	REQH1	5L I/F from H/U	
93	I	REMO	Data input from remote control	
94	I	DATAC2	5L I/F from CD_CH	
95	O	DATAH2	5L I/F to CD_CH	
96	O	HCLK2	5L I/F to CD_CH	
97	I	DATAH1	5L I/F from H/U	
98	O	DATAC1	5L I/F to H/U	
99	I	HCLK1	5L I/F from H/U	
100	I	SDA	I2C data inout	

PC BOARD (COMPONENT SIDE VIEW)

PROCESSOR UNIT X32-5510-10 (J74-1553-02)

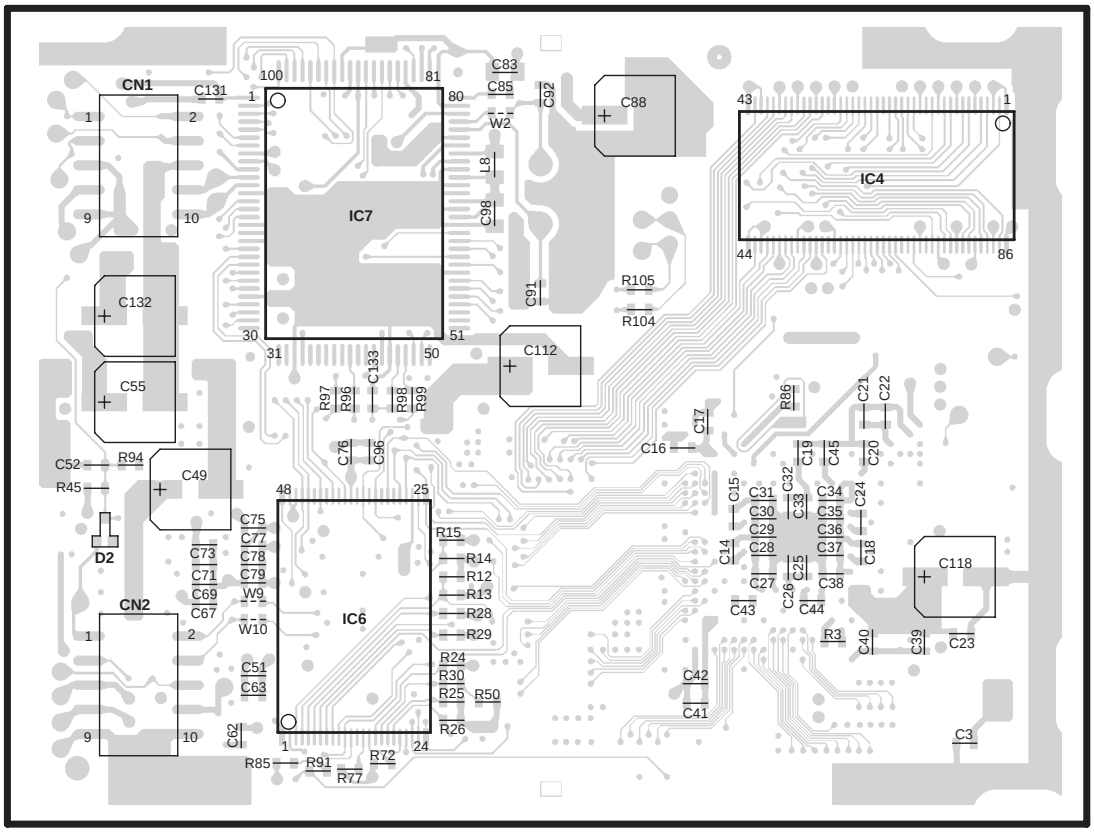


X32-5510-10

IC	Q	Address
1		3A
2		3C
	1	2C

(FOIL SIDE VIEW)

PROCESSOR UNIT X32-5510-10 (J74-1553-02)



X32-5510-10

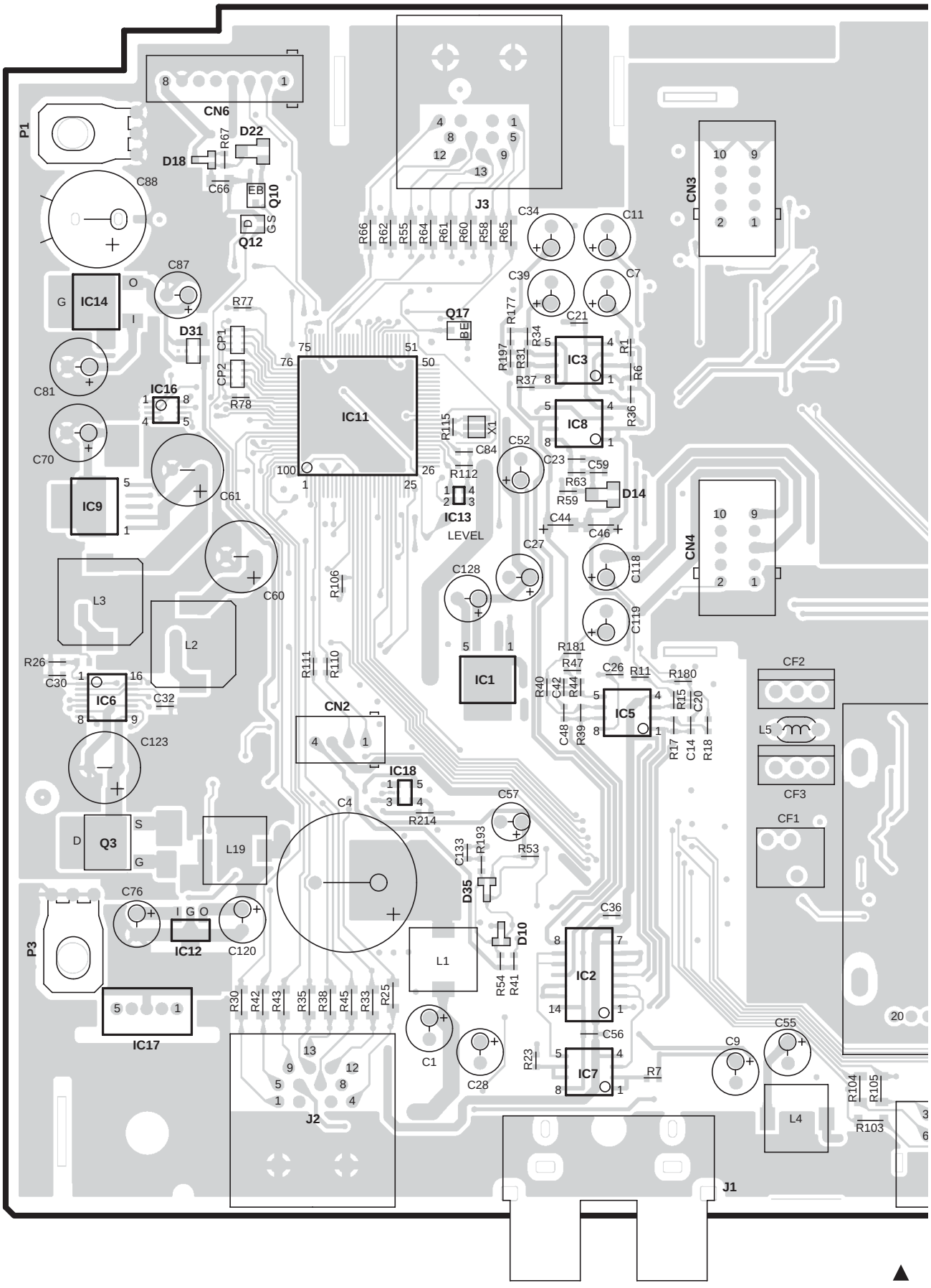
IC	Address
4	5C
6	6B
7	5B

Refer to the schematic diagram for the values of resistors and capacitors.

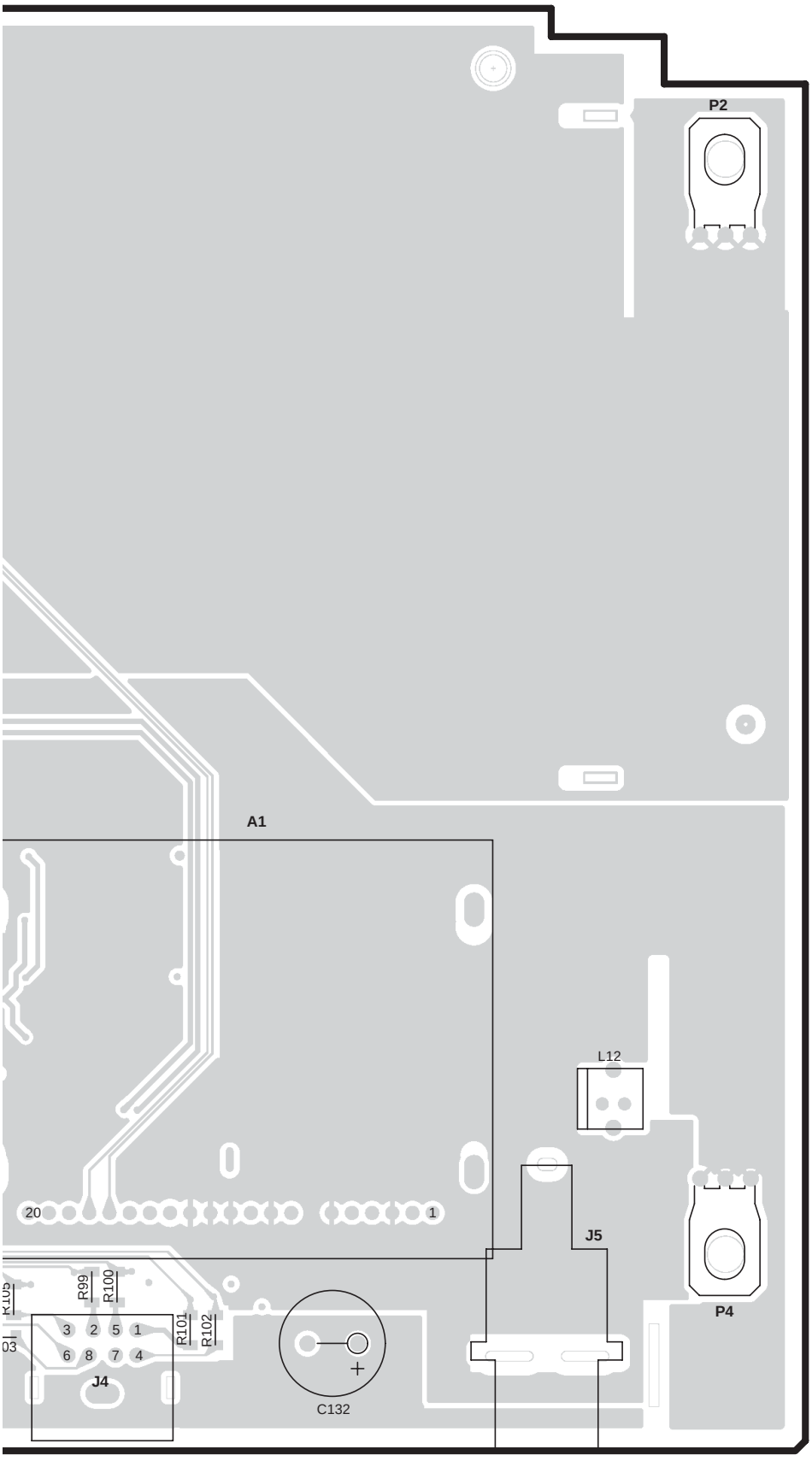
KTC-HR100

PC BOARD (COMPONENT SIDE VIEW)

DIGITAL TUNER UNIT X14-9310-10 (J74-1554-02)



▼



X14-9310-10

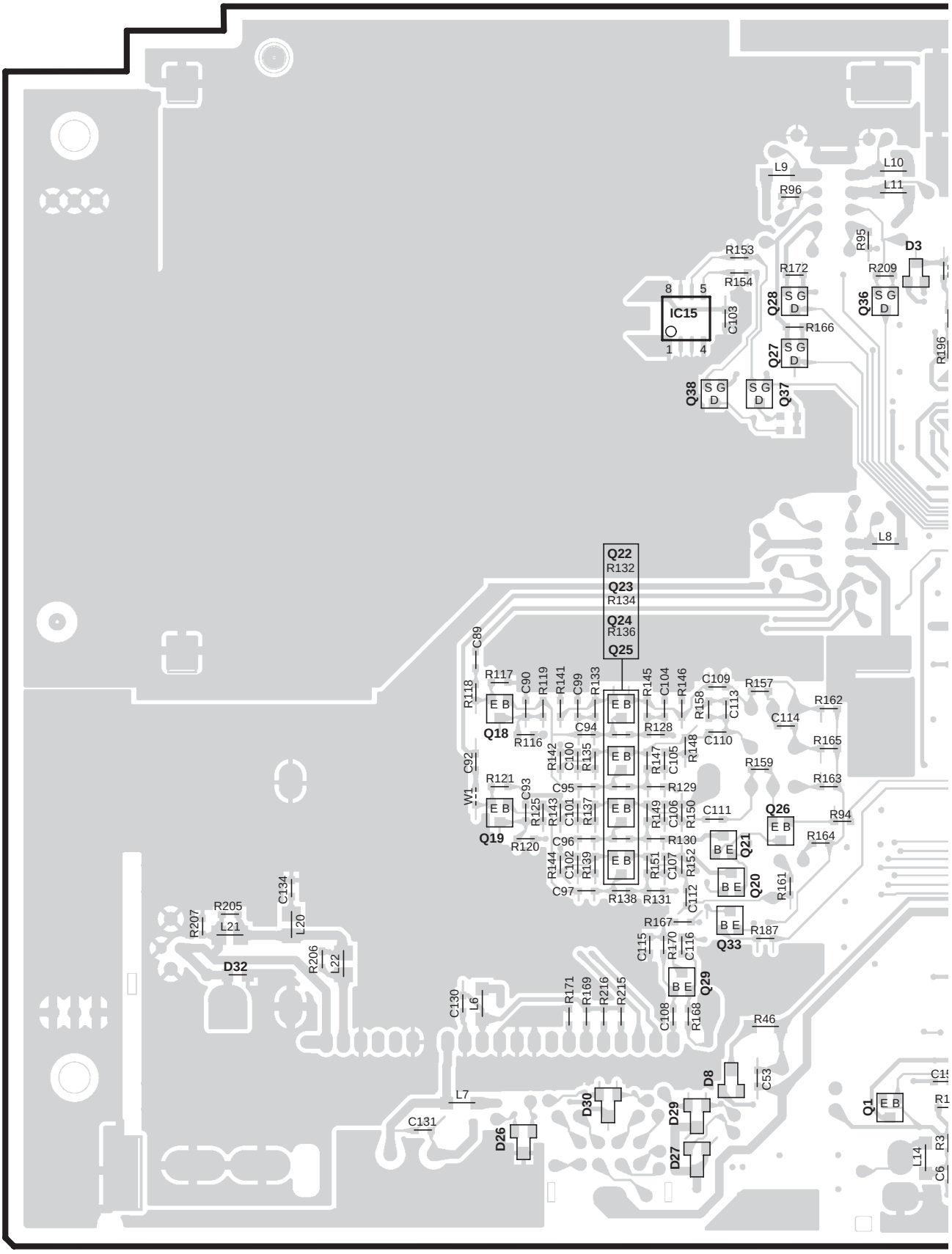
IC	Q	Address
1		4H
2		6I
3		3I
5		5I
6		4G
7		6I
8		3I
9		4G
11		3H
12		6G
13		4H
14		3G
16		3G
17		6G
18		5H
	3	5G
	10	2G
	12	2G
	17	3H

▲ Refer to the schematic diagram for the values of resistors and capacitors.

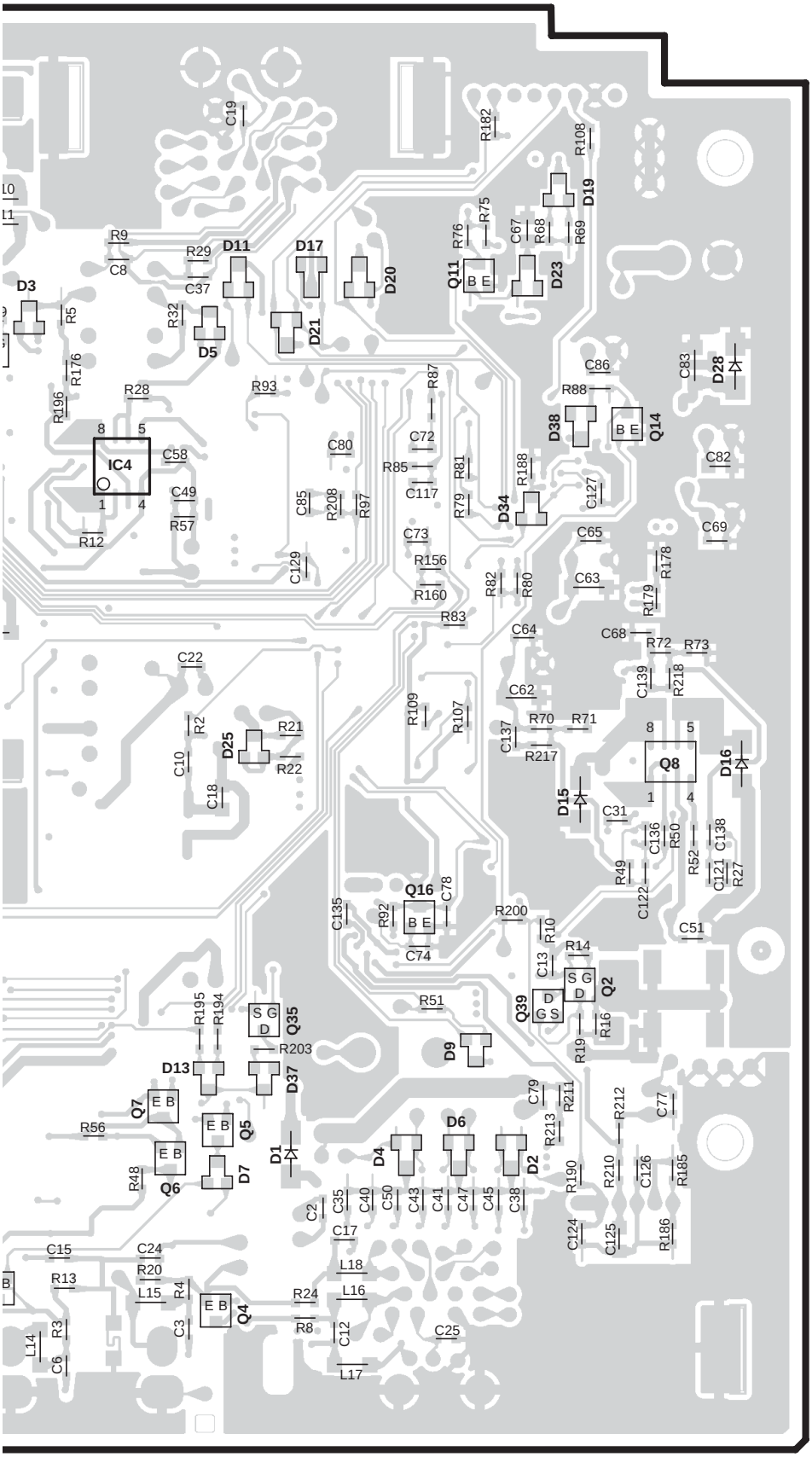
KTC-HR100

PC BOARD (FOIL SIDE VIEW)

DIGITAL TUNER UNIT X14-9310-10 (J74-1554-02)



▼



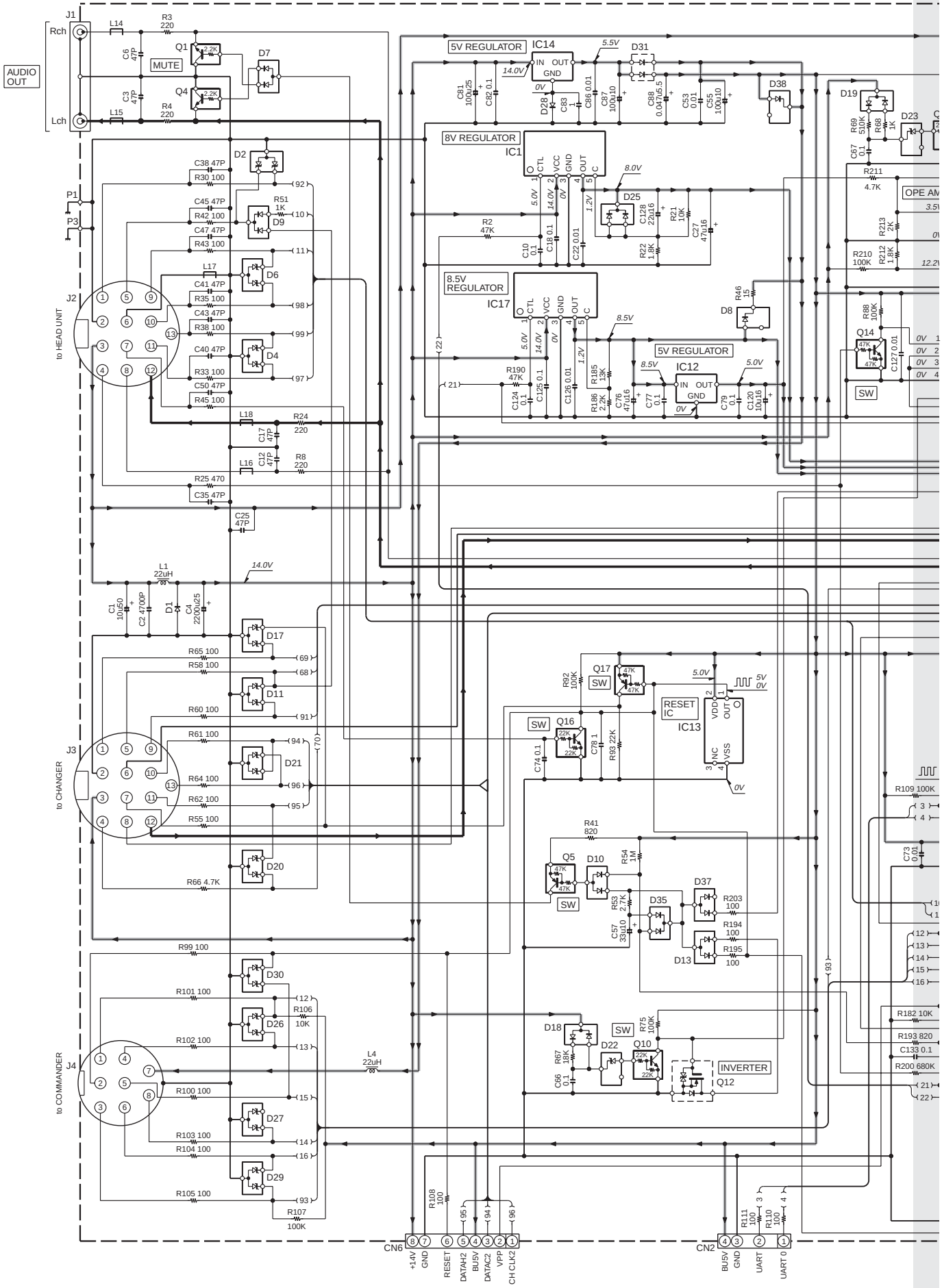
X14-9310-10

IC	Q	Address
4		3U
15		3S
	1	6T
	2	5W
	4	6U
	5	6U
	6	6U
	7	6U
	8	4W
	11	2V
	14	3W
	16	5V
	18	5R
	19	5R
	20	5T
	21	5T
	22	4S
	23	4S
	24	4S
	25	4S
	26	5T
	27	3T
	28	3T
	29	6S
	33	5S
	35	5V
	36	3T
	37	3T
	38	3S
	39	5W

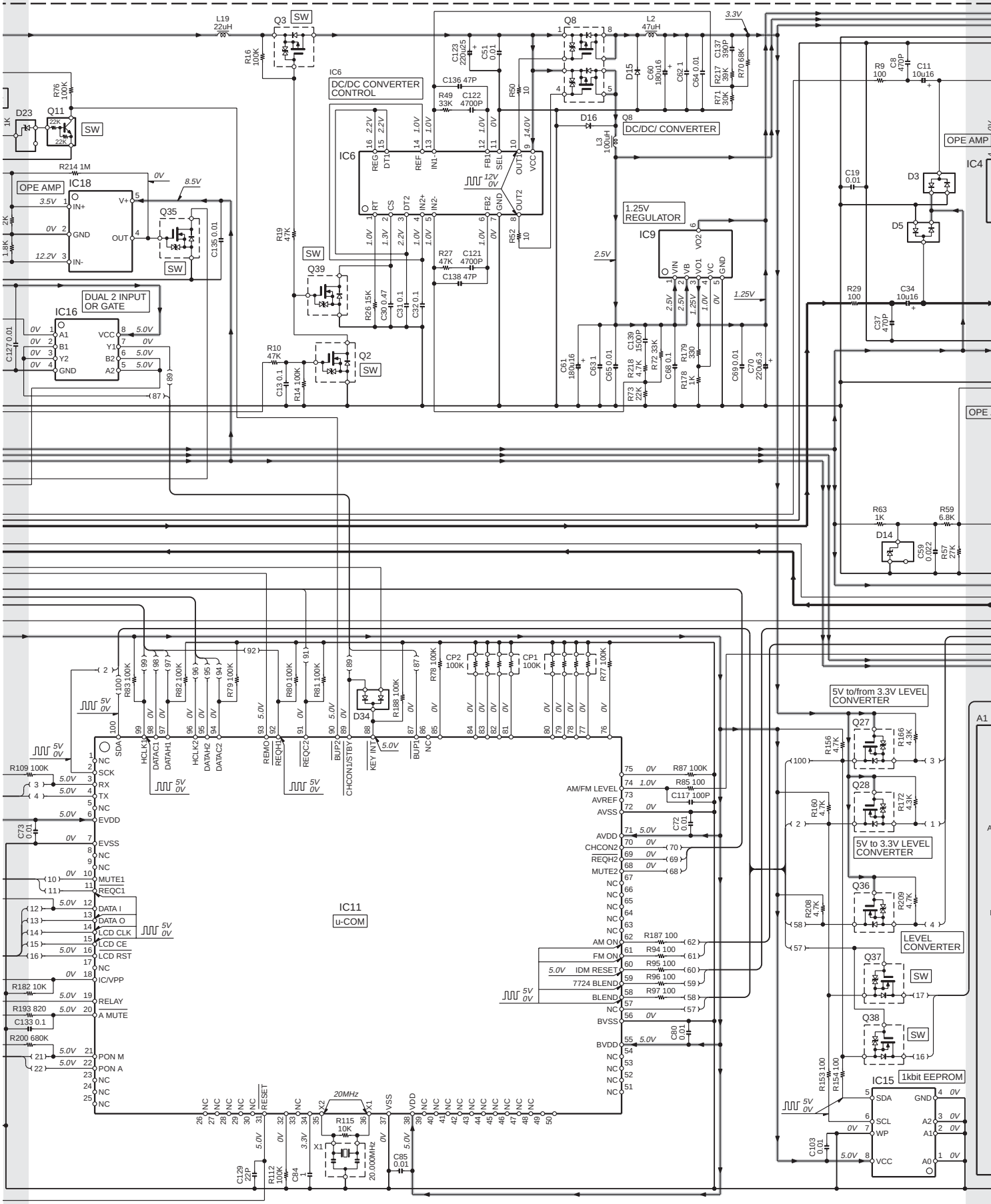
▲ Refer to the schematic diagram for the values of resistors and capacitors.

KTC-HR100

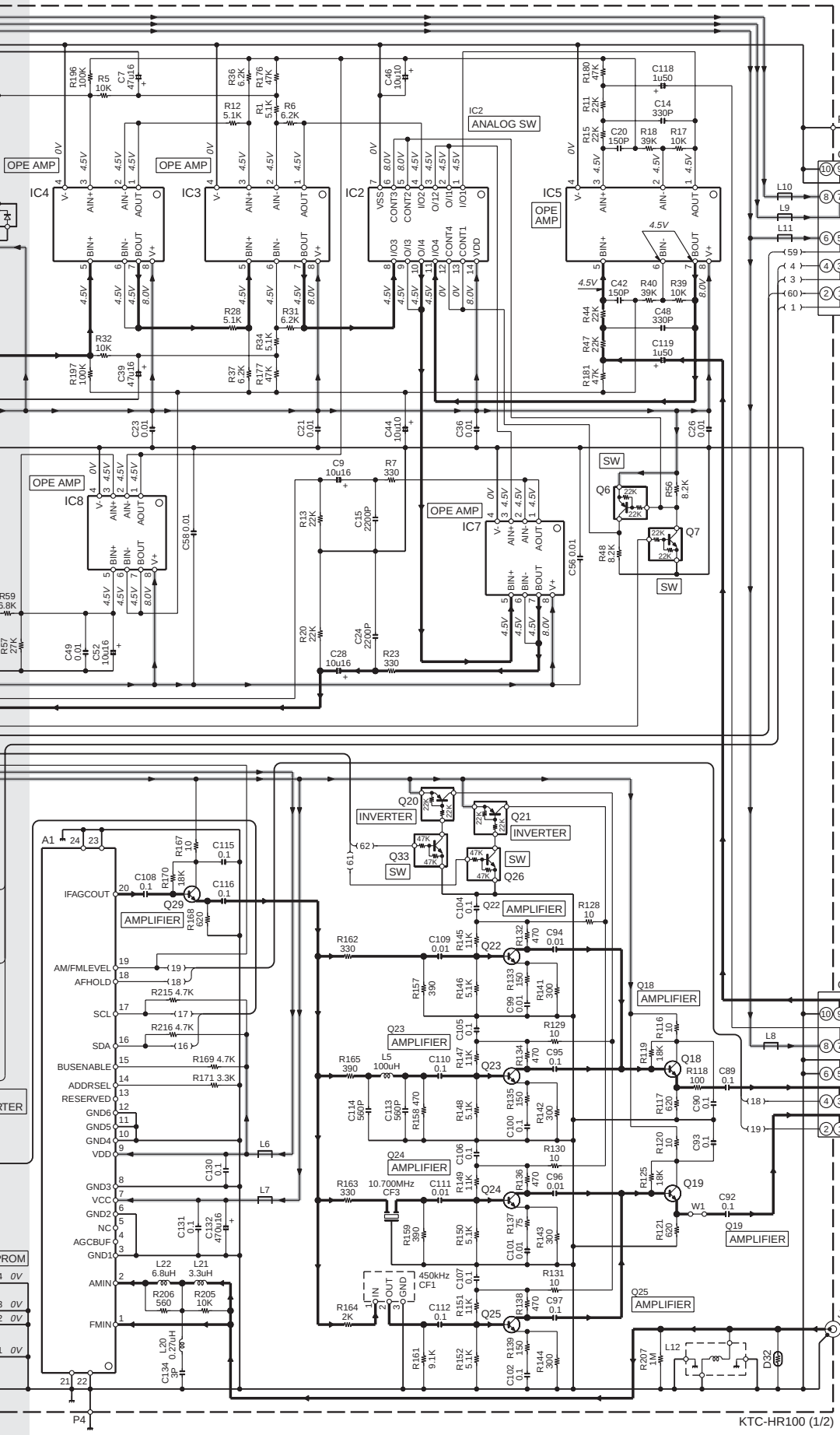
(X14-9310-10)



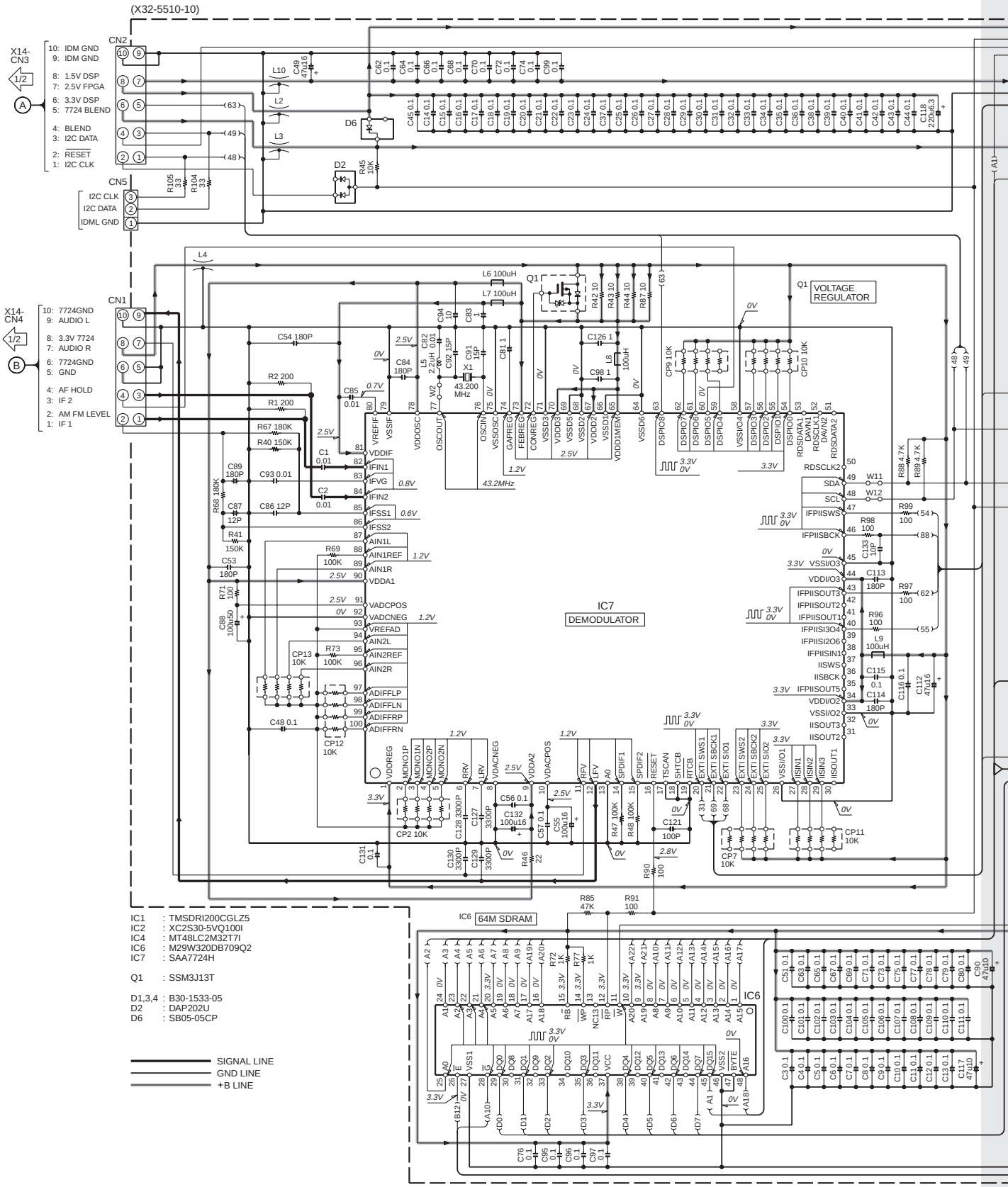
KTC-HR100


IC6
DC/DC CONVERTER CONTROL
DC/DC/ CONVERTER
OPE AMP
IC18
DUAL 2 INPUT OR GATE
IC16
1.25V REGULATOR
IC9
IC11
u-COM
5V to/from 3.3V LEVEL CONVERTER
5V to 3.3V LEVEL CONVERTER
LEVEL CONVERTER
IC15
1kbit EEPROM
20MHz
20.000MHz
SW

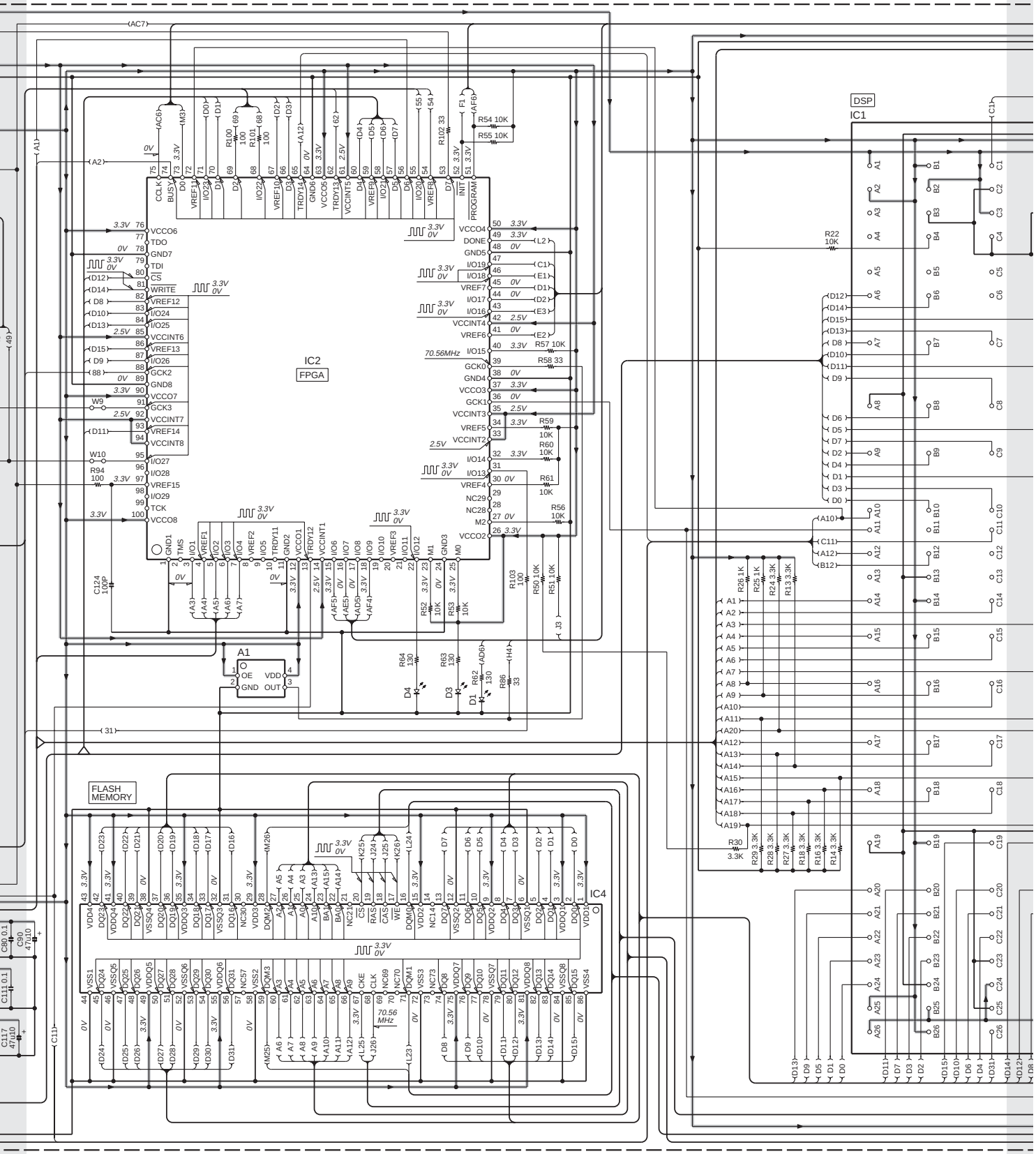
KTC-HR100


IC1 : BA00ASFP
IC2 : TC4066BF(N)
IC3-5,7,8 : NJM4580M1
IC6 : FA7703V
IC9 : PQ015YZ01ZP
IC11 : 70F3030BYGC1RQ
IC12 : TA78L05F
IC13 : S-80837CNNB
IC14 : TA48M05F
IC15 : BR24C01AF-W
IC16 : TC7W32FU
IC17 : BA00AST
IC18 : NJM2125F
Q1,4 : DTC323TU
Q2,12,27,28,35-39 : 2SK3018
Q3 : 2SJ377
Q5,17 : DTA144EUA
Q6,20,21 : DTA124EUA
Q7,10,11,16 : DTC124EUA
Q8 : HAT1016R
Q14,26,33 : DTC144EUA
Q18,19,22-25,29 : 2SC4081
D1,28 : 1SR154-400
D2,4,6,11,17,20,21,26,27,29,30 : MA3062WA
D3,5,18,19 : DA204U
D7,10,13,37 : DAP202U
D8,38 : SB05-05CP
D9,25,34,35 : DAN202U
D14,22,23 : MA3056-M
D15,16 : RB160L-40
D31 : SBE803
D32 : IMSA-6801
SIGNAL LINE
GND LINE
+B LINE
CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).
⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.
KTC-HR100 (1/2)

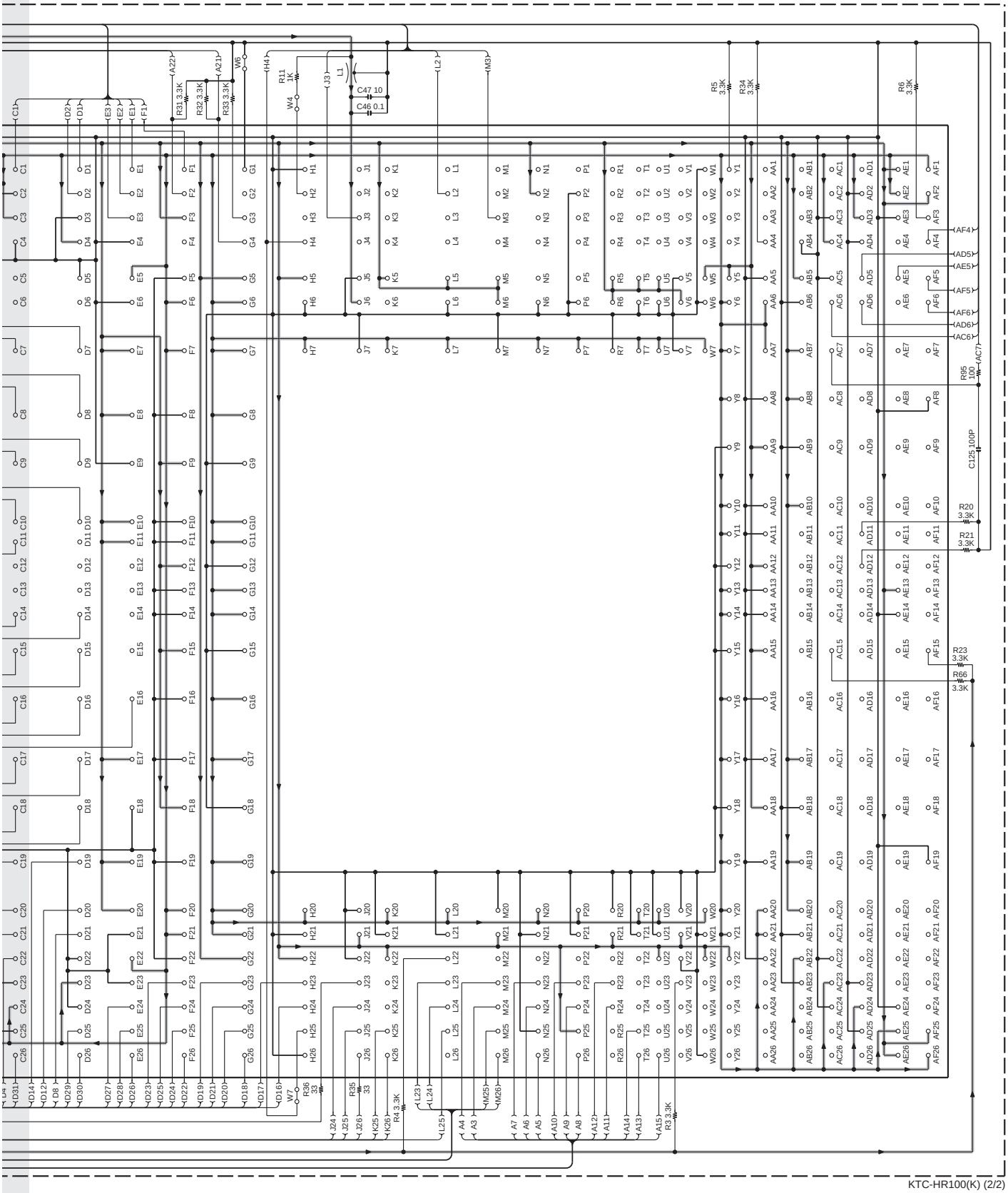
- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.


(X32-5510-10)
CN2
X14-CN3
10: IDM GND
9: IDM GND
8: 1.5V DSP
7: 2.5V FPGA
6: 3.3V DSP
5: 7724 BLEND
4: BLEND
3: I2C DATA
2: RESET
1: I2C CLK
CN5
I2C CLK
I2C DATA
IDML GND
CN1
X14-CN4
10: 7724GND
9: AUDIO L
8: 3.3V 7724
7: AUDIO R
6: 7724GND
5: GND
4: AF HOLD
3: IF 2
2: AM FM LEVEL
1: IF 1
Q1 VOLTAGE REGULATOR
IC7 DEMODULATOR
IC6 64M SDRAM
IC1 : TMSDRI200CGLZ5
IC2 : XC2S30-5VQ100I
IC4 : MT48LC2M32T7I
IC6 : M29W320DB709Q2
IC7 : SAA7724H
Q1 : SSM3J13T
D1,3,4 : B30-1533-05
D2 : DAP202U
D6 : SB05-05CP
SIGNAL LINE
GND LINE
+B LINE

KTC-HR100


IC2
FPGA
DSP
IC1
FLASH MEMORY
IC4
A1
OE
VDD
GND
OUT
70.56MHz
70.56 MHz

KTC-HR100



KTC-HR100(K) (2/2)

KTC-HR100

DSP PIN DESCRIPTION

PIN No.	PIN NAME
A1	CVDD
A2	DVDD
A3	NC
A4	NC
A5	NC
A6	BED12
A7	BED8
A8	VSS
A9	BED2
A10	#BSDCAS
A11	BCLKIN
A12	#BCE0
A13	NC
A14	BEA1
A15	BEA4
A16	BEA8
A17	BEA12
A18	BEA16
A19	VSS
A20	AED13
A21	AED9
A22	AED5
A23	AED1
A24	AED0
A25	DVDD
A26	CVDD
B1	DVDD
B2	CVDD
B3	VSS
B4	NMI
B5	NC
B6	BED14
B7	BED10
B8	BED6
B9	BED4
B10	BED0
B11	NC
B12	#BCE1
B13	VSS
B14	DVDD
B15	BEA5
B16	BEA9
B17	BEA13
B18	BEA17
B19	#BHOLD
B20	AED11
B21	AED7
B22	AED3
B23	AED2
B24	VSS
B25	CVDD
B26	DVDD
C1	FSR0
C2	VSS
C3	CVDD
C4	VSS
C5	NC
C6	NC
C7	BED13
C8	BED9
C9	BED7
C10	BED3
C11	#BSDWE
C12	NC
C13	NC
C14	BEA2
C15	BEA6
C16	BEA10
C17	BEA14
C18	BEA18
C19	AED15
C20	AED10
C21	AED6
C22	AED4
C23	VSS
C24	CVDD
C25	VSS
C26	AED31
D1	CLKR0
D2	DR0
D3	VSS
D4	CVDD
D5	VSS
D6	NC
D7	BED15
D8	BED11
D9	BED5
D10	BED1
D11	NC
D12	NC
D13	NC
D14	BEA3
D15	BEA7
D16	BEA11
D17	BEA15
D18	BEA19
D19	AED14
D20	AED12
D21	AED8
D22	VSS
D23	CVDD
D24	VSS
D25	AED29
D26	AED30
E1	CLKX0
E2	DX0
E3	FSX0
E4	VSS

PIN No.	PIN NAME
E5	CVDD
E6	VSS
E7	DVDD
E8	DVDD
E9	VSS
E10	DVDD
E11	BARDY
E12	NC
E13	NC
E14	NC
E15	NC
E16	BEA20
E17	DVDD
E18	VSS
E19	DVDD
E20	DVDD
E21	VSS
E22	CVDD
E23	VSS
E24	AED27
E25	AED28
E26	AED26
F1	GP11
F2	GP14
F3	RSV
F4	NC
F5	VSS
F6	CVDD
F7	CVDD
F8	VSS
F9	DVDD
F10	VSS
F11	VSS
F12	DVDD
F13	VSS
F14	VSS
F15	DVDD
F16	VSS
F17	VSS
F18	DVDD
F19	VSS
F20	CVDD
F21	CVDD
F22	VSS
F23	AED23
F24	AED25
F25	AED24
F26	AED22
G1	CLKMODE1
G2	NC
G3	GP15
G4	GP13
G5	DVDD
G6	CVDD
G7	CVDD
G8	CVDD
G9	VSS
G10	CVDD
G11	CVDD
G12	VSS
G13	CVDD
G14	RSV
G15	VSS
G16	CVDD
G17	CVDD
G18	VSS
G19	CVDD
G20	CVDD
G21	CVDD
G22	DVDD
G23	AED19
G24	AED21
G25	AED20
G26	AED18
H1	VSS
H2	CLKMODE0
H3	NC
H4	CLKIN
H5	DVDD
H6	VSS
H7	RSV
H20	CVDD
H21	VSS
H22	DVDD
H23	AED17
H24	AED16
H25	AECLKIN
H26	VSS
J1	NC
J2	NC
J3	GP12
J4	NC
J5	VSS
J6	PLLV
J7	VSS
J20	VSS
J21	DVDD
J22	VSS
J23	AECLKOUT2
J24	#ASDRAS
J25	#ASDCAS
J26	AECLKOUT1
K1	NC
K2	NC
K3	NC
K4	NC
K5	DVDD

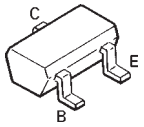
PIN No.	PIN NAME
K6	NC
K7	CVDD
K20	CVDD
K21	VSS
K22	DVDD
K23	NC
K24	NC
K25	#ACE0
K26	#ASDWE
L1	NC
L2	GP10
L3	NC
L4	NC
L5	DVDD
L6	VSS
L7	CVDD
L20	CVDD
L21	VSS
L22	AARDY
L23	#ABE1
L24	#ABE0
L25	ASDCLKE
L26	NC
M1	NC
M2	NC
M3	GP9
M4	NC
M5	DVDD
M6	DVDD
M7	VSS
M20	VSS
M21	DVDD
M22	NC
M23	AEA4
M24	AEA3
M25	#ABE3
M26	#ABE2
N1	NC
N2	DVDD
N3	NC
N4	NC
N5	NC
N6	VSS
N7	CVDD
N20	RSV
N21	VSS
N22	NC
N23	AEA7
N24	AEA6
N25	VSS
N26	AEA5
P1	NC
P2	VSS
P3	NC
P4	NC
P5	NC
P6	VSS
P7	RSV
P20	CVDD
P21	VSS
P22	NC
P23	AEA10
P24	AEA9
P25	DVDD
P26	AEA8
R1	NC
R2	NC
R3	NC
R4	NC
R5	RSV
R6	RSV
R7	VSS
R20	VSS
R21	DVDD
R22	NC
R23	AEA12
R24	AEA11
R25	NC
R26	NC
T1	NC
T2	NC
T3	NC
T4	NC
T5	DVDD
T6	VSS
T7	CVDD
T20	CVDD
T21	VSS
T22	NC
T23	NC
T24	NC
T25	AEA14
T26	AEA13
U1	NC
U2	NC
U3	NC
U4	NC
U5	DVDD
U6	VSS
U7	CVDD
U20	CVDD
U21	VSS
U22	DVDD
U23	NC
U24	NC

PIN No.	PIN NAME
U25	NC
U26	AEA15
V1	NC
V2	NC
V3	NC
V4	NC
V5	VSS
V6	DVDD
V7	VSS
V20	VSS
V21	DVDD
V22	VSS
V23	#AHOLD
V24	NC
V25	NC
V26	NC
W1	VSS
W2	NC
W3	NC
W4	NC
W5	DVDD
W6	VSS
W7	CVDD
W20	CVDD
W21	VSS
W22	DVDD
W23	NC
W24	NC
W25	NC
W26	VSS
Y1	HD5
Y2	NC
Y3	NC
Y4	NC
Y5	DVDD
Y6	CVDD
Y7	CVDD
Y8	CVDD
Y9	VSS
Y10	CVDD
Y11	CVDD
Y12	VSS
Y13	RSV
Y14	CVDD
Y15	VSS
Y16	CVDD
Y17	CVDD
Y18	VSS
Y19	CVDD
Y20	CVDD
Y21	CVDD
Y22	DVDD
Y23	NC
Y24	NC
Y25	NC
Y26	NC
AA1	NC
AA2	NC
AA3	NC
AA4	PCI EN
AA5	VSS
AA6	CVDD
AA7	CVDD
AA8	VSS
AA9	DVDD
AA10	VSS
AA11	VSS
AA12	DVDD
AA13	VSS
AA14	VSS
AA15	DVDD
AA16	VSS
AA17	VSS
AA18	DVDD
AA19	VSS
AA20	CVDD
AA21	CVDD
AA22	VSS
AA23	NC
AA24	NC
AA25	NC
AA26	NC
AB1	NC
AB2	NC
AB3	NC
AB4	VSS
AB5	CVDD
AB6	VSS
AB7	DVDD
AB8	DVDD
AB9	VSS
AB10	DVDD
AB11	NC
AB12	NC
AB13	NC
AB14	NC
AB15	NC
AB16	NC
AB17	DVDD
AB18	VSS
AB19	DVDD
AB20	DVDD
AB21	VSS
AB22	CVDD
AB23	VSS
AB24	NC
AB25	NC

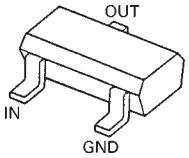
PIN No.	PIN NAME
AB26	NC
AC1	NC
AC2	NC
AC3	VSS
AC4	CVDD
AC5	VSS
AC6	GP3
AC7	#RESET
AC8	NC
AC9	NC
AC10	NC
AC11	NC
AC12	NC
AC13	NC
AC14	NC
AC15	EMU1
AC16	NC
AC17	NC
AC18	NC
AC19	NC
AC20	NC
AC21	NC
AC22	VSS
AC23	CVDD
AC24	VSS
AC25	NC
AC26	NC
AD1	NC
AD2	VSS
AD3	CVDD
AD4	VSS
AD5	EXT INT6
AD6	CLKOUT6
AD7	NC
AD8	NC
AAD9	NC
AD10	NC
AD11	UXCLK
AD12	URCLK
AD13	NC
AD14	NC
AD15	NC
AD16	NC
AD17	NC
AD18	NC
AD19	NC
AD20	NC
AD21	NC
AD22	NC
AD23	VSS
AD24	CVDD
AD25	VSS
AD26	NC
AE1	DVDD
AE2	CVDD
AE3	VSS
AE4	NC
AE5	EXT INT5
AE6	NC
AE7	NC
AE8	NC
AE9	NC
AE10	NC
AE11	NC
AE12	NC
AE13	DVDD
AE14	VSS
AE15	NC
AE16	NC
AE17	NC
AE18	NC
AE19	NC
AE20	NC
AE21	NC
AE22	NC
AE23	NC
AE24	VSS
AE25	CVDD
AE26	DVDD
AF1	CVDD
AF2	DVDD
AF3	MCBSP2 EN
AF4	EXT INT7
AF5	EXT INT4
AF6	GP0
AF7	NC
AF8	VSS
AF9	NC
AF10	NC
AF11	NC
AF12	NC
AF13	NC
AF14	NC
AF15	EMU0
AF16	NC
AF17	NC
AF18	NC
AF19	VSS
AF20	NC
AF21	NC
AF22	NC
AF23	NC
AF24	NC
AF25	DVDD
AF26	CVDD

DTA144EUA

DTC323TU
2SC4081

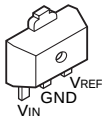


DTA124EUA
DTC124EUA
DTC144EUA



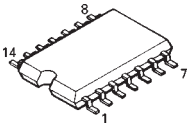
DAN202U

TA78L05F

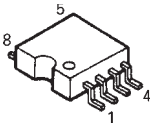


DAP202U
DA204U

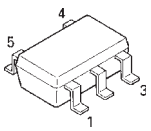
TC4066BF



BR24C01AF-W



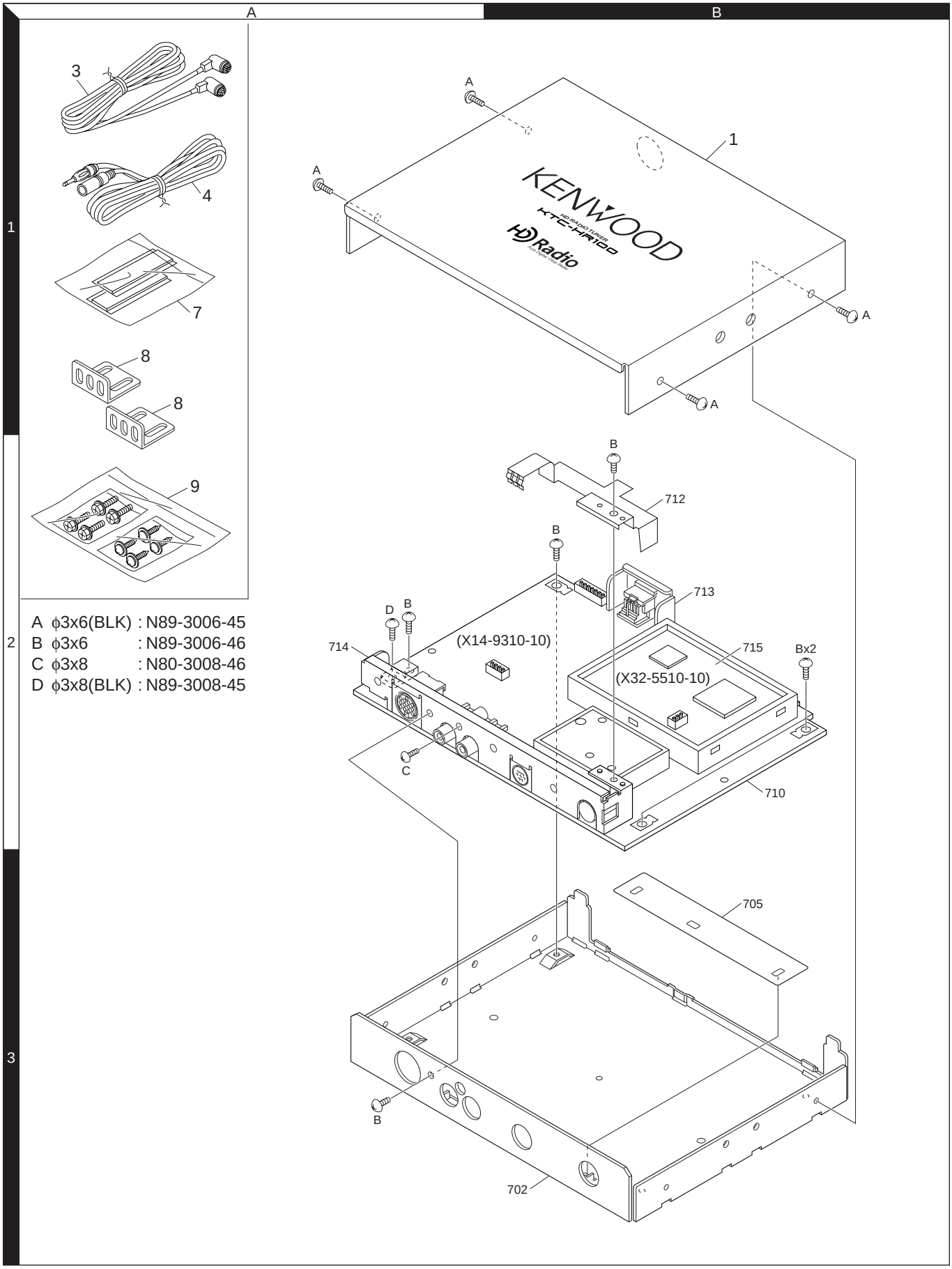
NJM2125F



CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).
⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

PARTS LIST

✻ New parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

Ref. No.	Add	New	Parts No.	Description			Destination
KTC-HR100							
1	1B	✻	A01-2830-02	METALLIC CABINET			
-			B46-0100-50	WARRANTY CARD			
-		✻	B64-2644-00	INSTRUCTION MANUAL			
3	1A		E30-4291-05	CORD WITH PLUG			
4	1A		E30-4953-05	CORD WITH PLUG			
7	1A		H30-0051-05	MAGIC TAPE			
-			H11-1546-04	POLYSTYRENE FOAMED BOARD			
-			H25-0333-04	PROTECTION BAG (125X160X0.03)			
-			H25-1130-04	PROTECTION BAG			
-			H25-1158-04	PROTECTION BAG (220X350X0.03)			
-		✻	H54-2955-03	ITEM CARTON CASE			
8	1A		J21-3801-04	MOUNTING HARDWARE			
9	2B		N99-1623-05	SCREW SET			
A	1B		N89-3006-45	BINDING HEAD TAPTITE SCREW			
B	2B		N89-3006-46	BINDING HEAD TAPTITE SCREW			
DIGITAL TUNER UNIT (X14-9310-10)							
C1			CD04AY1H100M	ELECTRO	10UF	50WV	
C2			CK73GB1H472K	CHIP C	4700PF	K	
C3			CC73GCH1H470J	CHIP C	47PF	J	
C4			CD04AZ1E222M	ELECTRO	2200UF	25WV	
C6			CC73GCH1H470J	CHIP C	47PF	J	
C7			C90-5577-05	ELECTRO	47UF	16WV	
C8			CK73GB1H471K	CHIP C	470PF	K	
C9			C90-5574-05	ELECTRO	10UF	16WV	
C10			CK73GB1C104K	CHIP C	0.10UF	K	
C11			C90-5574-05	ELECTRO	10UF	16WV	
C12			CC73GCH1H470J	CHIP C	47PF	J	
C13			CK73GB1C104K	CHIP C	0.10UF	K	
C14			CC73GCH1H331J	CHIP C	330PF	J	
C15			CK73GB1H222K	CHIP C	2200PF	K	
C17			CC73GCH1H470J	CHIP C	47PF	J	
C18			CK73FB1H104K	CHIP C	0.10UF	K	
C19			CK73GB1H103K	CHIP C	0.010UF	K	
C20			CC73GCH1H151J	CHIP C	150PF	J	
C21-23			CK73GB1H103K	CHIP C	0.010UF	K	
C24			CK73GB1H222K	CHIP C	2200PF	K	
C25			CC73GCH1H470J	CHIP C	47PF	J	
C26			CK73GB1H103K	CHIP C	0.010UF	K	
C27			C90-5577-05	ELECTRO	47UF	16WV	
C28			C90-5574-05	ELECTRO	10UF	16WV	
C30			CK73GB1A474K	CHIP C	0.47UF	K	
C31,32			CK73GB1C104K	CHIP C	0.10UF	K	
C34			C90-5574-05	ELECTRO	10UF	16WV	
C35			CC73GCH1H470J	CHIP C	47PF	J	
C36			CK73GB1H103K	CHIP C	0.010UF	K	
C37			CK73GB1H471K	CHIP C	470PF	K	
C38			CC73GCH1H470J	CHIP C	47PF	J	
C39			C90-5577-05	ELECTRO	47UF	16WV	
C40,41			CC73GCH1H470J	CHIP C	47PF	J	
C42			CC73GCH1H151J	CHIP C	150PF	J	
C43			CC73GCH1H470J	CHIP C	47PF	J	
C44			C92-0628-05	CHIP-TAN	10UF	10WV	
C45			CC73GCH1H470J	CHIP C	47PF	J	
C46			C92-0628-05	CHIP-TAN	10UF	10WV	
C47			CC73GCH1H470J	CHIP C	47PF	J	
C48			CC73GCH1H331J	CHIP C	330PF	J	
C49			CK73GB1H103K	CHIP C	0.010UF	K	
C50			CC73GCH1H470J	CHIP C	47PF	J	
C51			CK73GB1H103K	CHIP C	0.010UF	K	
C52			C90-5574-05	ELECTRO	10UF	16WV	
C53			CK73GB1H103K	CHIP C	0.010UF	K	
C55			CD04AY1A101M	ELECTRO	100UF	10WV	
C56			CK73GB1H103K	CHIP C	0.010UF	K	
C57			C94-0036-05	ELECTRO	33UF	10WV	
C58			CK73GB1H103K	CHIP C	0.010UF	K	
C59			CK73GB1H223K	CHIP C	0.022UF	K	
C60,61		✻	C90-5514-05	ELECTRO	180UF	16WV	
C62,63			CK73EB1E105K	CHIP C	1.0UF	K	
C64,65			CK73GB1H103K	CHIP C	0.010UF	K	
C66,67			CK73FB1H104K	CHIP C	0.10UF	K	
C68			CK73GB1C104K	CHIP C	0.10UF	K	
C69			CK73GB1H103K	CHIP C	0.010UF	K	
C70		✻	CD04AY0J221M	ELECTRO	220UF	6.3WV	
C72,73			CK73GB1H103K	CHIP C	0.010UF	K	
C74			CK73GB1C104K	CHIP C	0.10UF	K	
C76			C90-5577-05	ELECTRO	47UF	16WV	
C77			CK73GB1C104K	CHIP C	0.10UF	K	
C78			CK73GB0J105K	CHIP C	1.0UF	K	
C79			CK73GB1C104K	CHIP C	0.10UF	K	
C80			CK73GB1H103K	CHIP C	0.010UF	K	
C81		✻	CD04AY1E101M	ELECTRO	100UF	25WV	
C82			CK73FB1H104K	CHIP C	0.10UF	K	
C83			CK73EB1E105K	CHIP C	1.0UF	K	
C84			CK73GB0J105K	CHIP C	1.0UF	K	
C85,86			CK73GB1H103K	CHIP C	0.010UF	K	
C87			CD04AY1A101M	ELECTRO	100UF	10WV	
C88		✻	C90-5647-05	ELECTRO	0.047F	5.5WV	
C89,90			CK73GB1C104K	CHIP C	0.10UF	K	
C92,93			CK73GB1C104K	CHIP C	0.10UF	K	
C94			CK73GB1H103K	CHIP C	0.010UF	K	
C95			CK73GB1C104K	CHIP C	0.10UF	K	
C96			CK73GB1H103K	CHIP C	0.010UF	K	
C97			CK73GB1C104K	CHIP C	0.10UF	K	
C99			CK73GB1H103K	CHIP C	0.010UF	K	
C100			CK73GB1C104K	CHIP C	0.10UF	K	
C101			CK73GB1H103K	CHIP C	0.010UF	K	
C102			CK73GB1C104K	CHIP C	0.10UF	K	
C103			CK73GB1H103K	CHIP C	0.010UF	K	
C104-108			CK73GB1C104K	CHIP C	0.10UF	K	
C109			CK73GB1H103K	CHIP C	0.010UF	K	
C110			CK73GB1C104K	CHIP C	0.10UF	K	
C111			CK73GB1H103K	CHIP C	0.010UF	K	
C112			CK73GB1C104K	CHIP C	0.10UF	K	
C113,114			CC73GCH1H561J	CHIP C	560PF	J	
C115,116			CK73GB1C104K	CHIP C	0.10UF	K	

K : North America

⚠ Indicates safety critical components.

PARTS LIST

✻ New parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

DIGITAL TUNER UNIT (X14-9310-10)

Ref. No.	Add	New	Parts No.	Description				Destination
C117			CC73GCH1H101J	CHIP C	100PF	J		
C118,119			C90-5601-05	ELECTRO	1UF	50WV		
C120			C90-5574-05	ELECTRO	10UF	16WV		
C121,122			CK73GB1H472K	CHIP C	4700PF	K		
C123		✻	CD04BD1E221M	ELECTRO	220UF	25WV		
C124			CK73GB1C104K	CHIP C	0.10UF	K		
C125			CK73FB1H104K	CHIP C	0.10UF	K		
C126,127			CK73GB1H103K	CHIP C	0.010UF	K		
C128		✻	C90-5575-05	ELECTRO	22UF	16WV		
C129			CC73GCH1H220J	CHIP C	22PF	J		
C130,131			CK73GB1C104K	CHIP C	0.10UF	K		
C132		✻	C90-5581-05	ELECTRO	470UF	16WV		
C133			CK73GB1H104K	CHIP C	0.10UF	K		
C134			CC73GCH1H030C	CHIP C	3.0PF	C		
C135			CK73GB1H103K	CHIP C	0.010UF	K		
C136			CC73GCH1H470J	CHIP C	47PF	J		
C137			CC73GCH1H391J	CHIP C	390PF	J		
C138			CC73GCH1H470J	CHIP C	47PF	J		
C139			CK73GB1H152K	CHIP C	1500PF	K		
CN2			E40-3248-05	PIN ASSY (4P)				
CN3,4		✻	E41-2029-05	PIN ASSY (10P)				
CN6			E40-3252-05	PIN ASSY (8P)				
J1			E63-0893-05	PIN JACK (2P)				
J2,3			E56-0846-05	CYLINDRICAL RECEPTACLE (13P)				
J4			E56-0811-05	CYLINDRICAL RECEPTACLE (M-D8P)				
J5			E04-0306-05	RF COAXIAL CABLE RECEPTACLE				
CF1			L72-0743-05	CERAMIC FILTER				
CF3			L72-0781-05	CERAMIC FILTER				
L1			L33-1177-05	CHOKE COIL (22U)				
L2		✻	L33-1975-05	CHOKE COIL (47UH)				
L3			L33-1187-05	CHOKE COIL (100UH)				
L4			L33-1177-05	CHOKE COIL (22U)				
L5		✻	L40-1015-91	SMALL FIXED INDUCTOR (100U)				
L6-11			L92-0376-05	CHIP FERRITE				
L12			L33-1123-05	LINE FILTER COIL				
L14-18			L92-0376-05	CHIP FERRITE				
L19			L33-1177-05	CHOKE COIL (22U)				
L20		✻	L40-2785-85	SMALL FIXED INDUCTOR				
L21			L40-3395-85	SMALL FIXED INDUCTOR				
L22		✻	L40-6895-85	SMALL FIXED INDUCTOR (6.8U)				
X1			L78-0821-05	RESONATOR				
B	2B		N89-3006-46	BINDING HEAD TAPTITE SCREW				
C	2A		N80-3008-46	PAN HEAD TAPTITE SCREW				
D	2A		N89-3008-45	BINDING HEAD TAPTITE SCREW				
CP1,2			R90-1058-05	MULTI-COMP		100K X4		
R1			RK73GB2A512J	CHIP R	5.1K	J	1/10W	
R2			RK73GB2A473J	CHIP R	47K	J	1/10W	
R3,4			RK73GB2A221J	CHIP R	220	J	1/10W	
R5			RK73GB2A103J	CHIP R	10K	J	1/10W	
R6			RK73GB2A622J	CHIP R	6.2K	J	1/10W	
R7			RK73GB2A331J	CHIP R	330	J	1/10W	
R8			RK73GB2A221J	CHIP R	220	J	1/10W	
R9			RK73GB2A101J	CHIP R	100	J	1/10W	
R10			RK73GB2A473J	CHIP R	47K	J	1/10W	

Ref. No.	Add	New	Parts No.	Description				Destination
R11			RK73GB2A223J	CHIP R	22K	J	1/10W	
R12			RK73GB2A512J	CHIP R	5.1K	J	1/10W	
R13			RK73GB2A223J	CHIP R	22K	J	1/10W	
R14			RK73GB2A104J	CHIP R	100K	J	1/10W	
R15			RK73GB2A223J	CHIP R	22K	J	1/10W	
R16			RK73GB2A104J	CHIP R	100K	J	1/10W	
R17			RK73GB2A103J	CHIP R	10K	J	1/10W	
R18			RK73GB2A393J	CHIP R	39K	J	1/10W	
R19			RK73GB2A473J	CHIP R	47K	J	1/10W	
R20			RK73GB2A223J	CHIP R	22K	J	1/10W	
R21			RK73GB2A103J	CHIP R	10K	J	1/10W	
R22			RK73GB2A182J	CHIP R	1.8K	J	1/10W	
R23			RK73GB2A331J	CHIP R	330	J	1/10W	
R24			RK73GB2A221J	CHIP R	220	J	1/10W	
R25			RK73EB2E471J	CHIP R	470	J	1/4W	
R26			RK73GB2A153J	CHIP R	15K	J	1/10W	
R27			RK73GB2A473J	CHIP R	47K	J	1/10W	
R28			RK73GB2A512J	CHIP R	5.1K	J	1/10W	
R29			RK73GB2A101J	CHIP R	100	J	1/10W	
R30			RK73EB2E101J	CHIP R	100	J	1/4W	
R31			RK73GB2A622J	CHIP R	6.2K	J	1/10W	
R32			RK73GB2A103J	CHIP R	10K	J	1/10W	
R33			RK73EB2E101J	CHIP R	100	J	1/4W	
R34			RK73GB2A512J	CHIP R	5.1K	J	1/10W	
R35			RK73EB2E101J	CHIP R	100	J	1/4W	
R36,37			RK73GB2A622J	CHIP R	6.2K	J	1/10W	
R38			RK73EB2E101J	CHIP R	100	J	1/4W	
R39			RK73GB2A103J	CHIP R	10K	J	1/10W	
R40			RK73GB2A393J	CHIP R	39K	J	1/10W	
R41			RK73GB2A821J	CHIP R	820	J	1/10W	
R42,43			RK73EB2E101J	CHIP R	100	J	1/4W	
R44			RK73GB2A223J	CHIP R	22K	J	1/10W	
R45			RK73EB2E101J	CHIP R	100	J	1/4W	
R46		✻	RK73EB2E150J	CHIP R	15	J	1/4W	
R47			RK73GB2A223J	CHIP R	22K	J	1/10W	
R48			RK73GB2A822J	CHIP R	8.2K	J	1/10W	
R49			RK73GB2A333J	CHIP R	33K	J	1/10W	
R50			RK73GB2A100J	CHIP R	10	J	1/10W	
R51			RK73GB2A102J	CHIP R	1.0K	J	1/10W	
R52			RK73GB2A100J	CHIP R	10	J	1/10W	
R53			RK73GB2A272J	CHIP R	2.7K	J	1/10W	
R54			RK73GB2A105J	CHIP R	1.0M	J	1/10W	
R55			RK73EB2E101J	CHIP R	100	J	1/4W	
R56			RK73GB2A822J	CHIP R	8.2K	J	1/10W	
R57			RK73GB2A273J	CHIP R	27K	J	1/10W	
R58			RK73EB2E101J	CHIP R	100	J	1/4W	
R59			RK73GB2A682J	CHIP R	6.8K	J	1/10W	
R60-62			RK73EB2E101J	CHIP R	100	J	1/4W	
R63			RK73GB2A102J	CHIP R	1.0K	J	1/10W	
R64,65			RK73EB2E101J	CHIP R	100	J	1/4W	
R66			RK73EB2E472J	CHIP R	4.7K	J	1/4W	
R67			RK73GB2A183J	CHIP R	18K	J	1/10W	
R68			RK73GB2A102J	CHIP R	1.0K	J	1/10W	
R69			RK73GB2A514J	CHIP R	510K	J	1/10W	
R70			RK73GH1J683D	CHIP R	68K	D	1/16W	

K : North America

⚠ Indicates safety critical components.

PARTS LIST

✻ New parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

DIGITAL TUNER UNIT (X14-9310-10)

Ref. No.	Add	New	Parts No.	Description	Destination
R71			RK73GH1J303D	CHIP R 30K D 1/16W	
R72			RK73GH1J333D	CHIP R 33K D 1/16W	
R73			RK73GH1J223D	CHIP R 22K D 1/16W	
R75-83			RK73GB2A104J	CHIP R 100K J 1/10W	
R85			RK73GB2A101J	CHIP R 100 J 1/10W	
R87,88			RK73GB2A104J	CHIP R 100K J 1/10W	
R92			RK73GB2A104J	CHIP R 100K J 1/10W	
R93			RK73GB2A223J	CHIP R 22K J 1/10W	
R94-97			RK73GB2A101J	CHIP R 100 J 1/10W	
R99-105			RK73EB2E101J	CHIP R 100 J 1/4W	
R106			RK73GB2A103J	CHIP R 10K J 1/10W	
R107			RK73GB2A104J	CHIP R 100K J 1/10W	
R108			RK73GB2A101J	CHIP R 100 J 1/10W	
R109			RK73GB2A104J	CHIP R 100K J 1/10W	
R110,111			RK73GB2A101J	CHIP R 100 J 1/10W	
R112			RK73GB2A104J	CHIP R 100K J 1/10W	
R115			RK73GB2A103J	CHIP R 10K J 1/10W	
R116			RK73GB2A100J	CHIP R 10 J 1/10W	
R117			RK73GB2A621J	CHIP R 620 J 1/10W	
R118			RK73GB2A101J	CHIP R 100 J 1/10W	
R119			RK73GB2A183J	CHIP R 18K J 1/10W	
R120			RK73GB2A100J	CHIP R 10 J 1/10W	
R121			RK73GB2A621J	CHIP R 620 J 1/10W	
R125			RK73GB2A183J	CHIP R 18K J 1/10W	
R128-131			RK73GB2A100J	CHIP R 10 J 1/10W	
R132			RK73GB2A471J	CHIP R 470 J 1/10W	
R133			RK73GB2A151J	CHIP R 150 J 1/10W	
R134			RK73GB2A471J	CHIP R 470 J 1/10W	
R135			RK73GB2A151J	CHIP R 150 J 1/10W	
R136			RK73GB2A471J	CHIP R 470 J 1/10W	
R137			RK73GB2A750J	CHIP R 75 J 1/10W	
R138			RK73GB2A471J	CHIP R 470 J 1/10W	
R139			RK73GB2A151J	CHIP R 150 J 1/10W	
R141-144			RK73GB2A301J	CHIP R 300 J 1/10W	
R145			RK73GB2A113J	CHIP R 11K J 1/10W	
R146			RK73GB2A512J	CHIP R 5.1K J 1/10W	
R147			RK73GB2A113J	CHIP R 11K J 1/10W	
R148			RK73GB2A512J	CHIP R 5.1K J 1/10W	
R149			RK73GB2A113J	CHIP R 11K J 1/10W	
R150			RK73GB2A512J	CHIP R 5.1K J 1/10W	
R151			RK73GB2A113J	CHIP R 11K J 1/10W	
R152			RK73GB2A512J	CHIP R 5.1K J 1/10W	
R153,154			RK73GB2A101J	CHIP R 100 J 1/10W	
R156			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R157			RK73GB2A391J	CHIP R 390 J 1/10W	
R158			RK73GB2A471J	CHIP R 470 J 1/10W	
R159			RK73GB2A391J	CHIP R 390 J 1/10W	
R160			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R161			RK73GB2A912J	CHIP R 9.1K J 1/10W	
R162,163			RK73GB2A331J	CHIP R 330 J 1/10W	
R164			RK73GB2A202J	CHIP R 2.0K J 1/10W	
R165			RK73GB2A391J	CHIP R 390 J 1/10W	
R166			RK73GB2A432J	CHIP R 4.3K J 1/10W	
R167			RK73GB2A100J	CHIP R 10 J 1/10W	
R168			RK73GB2A621J	CHIP R 620 J 1/10W	
R169			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R170			RK73GB2A183J	CHIP R 18K J 1/10W	
R171			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R172			RK73GB2A432J	CHIP R 4.3K J 1/10W	
R176,177			RK73GB2A473J	CHIP R 47K J 1/10W	
R178			RK73GH1J102D	CHIP R 1K D 1/16W	
R179			RK73GH1J331D	CHIP R 330 D 1/16W	
R180,181			RK73GB2A473J	CHIP R 47K J 1/10W	
R182			RK73GB2A103J	CHIP R 10K J 1/10W	
R185			RK73GH1J133D	CHIP R 13K D 1/16W	
R186			RK73GH1J222D	CHIP R 2.2K D 1/16W	
R187			RK73GB2A101J	CHIP R 100 J 1/10W	
R188			RK73GB2A104J	CHIP R 100K J 1/10W	
R190			RK73GB2A473J	CHIP R 47K J 1/10W	
R193			RK73GB2A821J	CHIP R 820 J 1/10W	
R194,195			RK73GB2A101J	CHIP R 100 J 1/10W	
R196,197			RK73GB2A104J	CHIP R 100K J 1/10W	
R200			RK73GB2A684J	CHIP R 680K J 1/10W	
R203			RK73GB2A101J	CHIP R 100 J 1/10W	
R205			RK73GB2A103J	CHIP R 10K J 1/10W	
R206			RK73GB2A561J	CHIP R 560 J 1/10W	
R207			RK73GB2A105J	CHIP R 1.0M J 1/10W	
R208,209			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R210			RK73GH1J104D	CHIP R 100K D 1/16W	
R211			RK73GH1J472D	CHIP R 4.7K D 1/16W	
R212			RK73GH1J183D	CHIP R 18K D 1/16W	
R213			RK73GH1J202D	CHIP R 2.0K D 1/16W	
R214			RK73GB2A105J	CHIP R 1.0M J 1/10W	
R215,216			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R217			RK73GB2A393J	CHIP R 39K J 1/10W	
R218			RK73GB2A472J	CHIP R 4.7K J 1/10W	
W1			R92-1252-05	CHIP R 0 OHM J 1/16W	
D1			1SR154-400	DIODE	
D2			MA3062WA	ZENER DIODE	
D3			DA204U	DIODE	
D4			MA3062WA	ZENER DIODE	
D5			DA204U	DIODE	
D6			MA3062WA	ZENER DIODE	
D7			DAP202U	DIODE	
D8			SB05-05CP	DIODE	
D9			DAN202U	DIODE	
D10			DAP202U	DIODE	
D11			MA3062WA	ZENER DIODE	
D13			DAP202U	DIODE	
D14			MA3056-M	ZENER DIODE	
D15,16			RB160L-40	DIODE	
D17			MA3062WA	ZENER DIODE	
D18,19			DA204U	DIODE	
D20,21			MA3062WA	ZENER DIODE	
D22,23			MA3056-M	ZENER DIODE	
D25			DAN202U	DIODE	
D26,27			MA3062WA	ZENER DIODE	
D28			1SR154-400	DIODE	
D29,30			MA3062WA	ZENER DIODE	

K : North America

⚠ Indicates safety critical components.

PARTS LIST

✻ New parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

Ref. No.	Add	New	Parts No.	Description	Destination
D31			SBE803	DIODE	
D32			IMSA-6801	SURGE ABSORBER	
D34,35			DAN202U	DIODE	
D37			DAP202U	DIODE	
D38			SB05-05CP	DIODE	
IC1			BA00ASFP	ANALOGUE IC	
IC2			TC4066BF(N)	MOS-IC	
IC3-5			NJM4580M1	ANALOGUE IC	
IC6			FA7703V	ANALOGUE IC	
IC7,8			NJM4580M1	ANALOGUE IC	
IC9		✻	PQ015YZ01ZP	ANALOGUE IC	
IC11		✻	70F3030BYGC1R9	MICROCONTROLLER IC	
IC12			TA78L05F	ANALOGUE IC	
IC13			S-80837CNNB	MOS-IC	
IC14			TA48M05F	ANALOGUE IC	
IC15			BR24C01AF-W	ROM IC	
IC16			TC7W32FU	MOS-IC	
IC17		✻	BA00AST	ANALOGUE IC	
IC18			NJM2125F	ANALOGUE IC	
Q1			DTC323TU	TRANSISTOR	
Q2			2SK3018	FET	
Q3			2SJ377	FET	
Q4			DTC323TU	TRANSISTOR	
Q5			DTA144EUA	TRANSISTOR	
Q6			DTA124EUA	TRANSISTOR	
Q7			DTC124EUA	TRANSISTOR	
Q8		✻	HAT1016R	DUAL FET	
Q10,11			DTC124EUA	TRANSISTOR	
Q12			2SK3018	FET	
Q14			DTC144EUA	TRANSISTOR	
Q16			DTC124EUA	TRANSISTOR	
Q17			DTA144EUA	TRANSISTOR	
Q18,19			2SC4081	TRANSISTOR	
Q20,21			DTA124EUA	TRANSISTOR	
Q22-25			2SC4081	TRANSISTOR	
Q26			DTC144EUA	TRANSISTOR	
Q27,28			2SK3018	FET	
Q29			2SC4081	TRANSISTOR	
Q33			DTC144EUA	TRANSISTOR	
Q35-39			2SK3018	FET	
A1		✻	W02-3428-05	FM/AM FRONT-END	

PROCESSOR UNIT (X32-5510-10)

D1			B30-1533-05	LED (1608,PG)			
D3,4			B30-1533-05	LED (1608,PG)			
C1,2			CK73GB1H103K	CHIP C	0.010UF	K	
C3-46			CK73GB1C104K	CHIP C	0.10UF	K	
C47			C93-1291-05	CERAMIC	10UF	16V	
C48			CK73GB1C104K	CHIP C	0.10UF	K	
C49			C92-0040-05	CHIP-ELE	47UF	16WV	
C51			CK73GB1H104K	CHIP C	0.10UF	K	
C53,54			CC73GCH1H181J	CHIP C	180PF	J	
C55			C92-1427-05	ELECTRO	100UF	16WV	
C56,57			CK73GB1C104K	CHIP C	0.10UF	K	
C62-80			CK73GB1H104K	CHIP C	0.10UF	K	

DIGITAL TUNER UNIT (X14-9310-10)

Ref. No.	Add	New	Parts No.	Description			Destination
C81			CK73FB1C105K	CHIP C	1.0UF	K	
C82			CK73GB1H103K	CHIP C	0.010UF	K	
C83			CK73FB1C105K	CHIP C	1.0UF	K	
C84			CC73GCH1H181J	CHIP C	180PF	J	
C85			CK73GB1H103K	CHIP C	0.010UF	K	
C86,87			CC73GCH1H120J	CHIP C	12PF	J	
C88			C92-1427-05	ELECTRO	100UF	16WV	
C89			CC73GCH1H181J	CHIP C	180PF	J	
C90			C92-1326-05	CHIP-TAN	47UF	10WV	
C91,92			CC73GCH1H150J	CHIP C	15PF	J	
C93			CK73GB1H103K	CHIP C	0.010UF	K	
C94			C93-1291-05	CERAMIC	10UF	16V	
C95-97			CK73GB1H104K	CHIP C	0.10UF	K	
C98			CK73FB1C105K	CHIP C	1.0UF	K	
C99-111			CK73GB1H104K	CHIP C	0.10UF	K	
C112			C92-0040-05	CHIP-ELE	47UF	16WV	
C113,114			CC73GCH1H181J	CHIP C	180PF	J	
C115,116			CK73GB1H104K	CHIP C	0.10UF	K	
C117			C92-1326-05	CHIP-TAN	47UF	10WV	
C118			C92-1429-05	ELECTRO	220UF	6.3WV	
C121			CC73GCH1H101J	CHIP C	100PF	J	
C124,125			CC73GCH1H101J	CHIP C	100PF	J	
C126			CK73FB1C105K	CHIP C	1.0UF	K	
C127-130			CK73GB1H332K	CHIP C	3300PF	K	
C131			CK73GB1C104K	CHIP C	0.10UF	K	
C132			C92-1427-05	ELECTRO	100UF	16WV	
C133			CC73GCH1H100D	CHIP C	10PF	D	
CN1,2		✻	E41-2028-05	SOCKET FOR PIN ASSY (10P)			
CN5			E40-3247-05	PIN ASSY (3P)			
L1-4			L79-0963-05	LC FILTER			
L5			L40-2292-93	SMALL FIXED INDUCTOR (2.2UH)			
L6-9			L92-0316-05	CHIP FERRITE			
L10			L79-0963-05	LC FILTER			
X1		✻	L77-2865-05	CRYSTAL RESONATOR			
CP2			RK74GB1J103J	CHIP-COM	10K	J	1/16W
CP7			RK74GB1J103J	CHIP-COM	10K	J	1/16W
CP9-13			RK74GB1J103J	CHIP-COM	10K	J	1/16W
R1,2			RK73GB2A201J	CHIP R	200	J	1/10W
R3-6			RK73GB2A332J	CHIP R	3.3K	J	1/10W
R11			RK73GB2A102J	CHIP R	1.0K	J	1/10W
R13,14			RK73GB2A332J	CHIP R	3.3K	J	1/10W
R16			RK73GB2A332J	CHIP R	3.3K	J	1/10W
R18			RK73GB2A332J	CHIP R	3.3K	J	1/10W
R20,21			RK73GB2A332J	CHIP R	3.3K	J	1/10W
R22			RK73GB2A103J	CHIP R	10K	J	1/10W
R23,24			RK73GB2A332J	CHIP R	3.3K	J	1/10W
R25,26			RK73GB2A102J	CHIP R	1.0K	J	1/10W
R27-34			RK73GB2A332J	CHIP R	3.3K	J	1/10W
R35,36			RK73GB2A330J	CHIP R	33	J	1/10W
R40,41			RK73GB2A154J	CHIP R	150K	J	1/10W
R42-44			RK73FB2B100J	CHIP R	10	J	1/8W
R45			RK73GB2A103J	CHIP R	10K	J	1/10W
R46			RK73GB2A220J	CHIP R	22	J	1/10W
R47,48			RK73GB2A104J	CHIP R	100K	J	1/10W

K : North America

⚠ Indicates safety critical components.

PARTS LIST

✻ New parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

PROCESSOR UNIT (X32-5510-10)

Ref. No.	Add	New	Parts No.	Description	Destination
R50-57			RK73GB2A103J	CHIP R 10K J 1/10W	
R58			RK73GB2A330J	CHIP R 33 J 1/10W	
R59-61			RK73GB2A103J	CHIP R 10K J 1/10W	
R62-64			RK73GB2A131J	CHIP R 130 J 1/10W	
R66			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R67,68			RK73GB2A184J	CHIP R 180K J 1/10W	
R69			RK73GB2A104J	CHIP R 100K J 1/10W	
R71			RK73GB2A101J	CHIP R 100 J 1/10W	
R72			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R73			RK73GB2A104J	CHIP R 100K J 1/10W	
R77			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R85			RK73GB2A473J	CHIP R 47K J 1/10W	
R86			RK73GB2A330J	CHIP R 33 J 1/10W	
R87			RK73FB2B100J	CHIP R 10 J 1/8W	
R88,89			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R90,91			RK73GB2A101J	CHIP R 100 J 1/10W	
R94-101			RK73GB2A101J	CHIP R 100 J 1/10W	
R102			RK73GB2A330J	CHIP R 33 J 1/10W	
R103			RK73GB2A101J	CHIP R 100 J 1/10W	
R104,105			RK73GB2A330J	CHIP R 33 J 1/10W	
W2			R92-1252-05	CHIP R 0 OHM J 1/16W	
W4			R92-1252-05	CHIP R 0 OHM J 1/16W	
W6,7			R92-1252-05	CHIP R 0 OHM J 1/16W	
W9-12			R92-1252-05	CHIP R 0 OHM J 1/16W	
D2			DAP202U	DIODE	
D6			SB05-05CP	DIODE	
IC1		✻	TMSDRI200CGLZ5	MOS-IC	
IC2		✻	XC2S30-5VQ100I	MOS-IC	
IC4		✻	MT48LC2M32T7I	DRAM IC	
IC6		✻	M29W320DB709Q2	ROM IC	
IC7		✻	SAA7724H	MOS-IC	
Q1		✻	SSM3J13T	FET (43.2MHZ)	
A1		✻	W02-3429-05	OSCILLATING MODULE (70.56MHZ)	

Ref. No.	Add	New	Parts No.	Description	Destination

K : North America

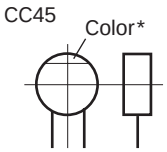
⚠ Indicates safety critical components.

PARTS LIST

CAPACITORS

C C	4 5	T H	1 H	2 2 0	J
1	2	3	4	5	6

1 = Type ... ceramic, electrolytic, etc.
2 = Shape ... round, square, etc.
3 = Temp. coefficient
4 = Voltage rating
5 = Value
6 = Tolerance



• Capacitor value

010 = 1pF
100 = 10pF
101 = 100pF
102 = 1000pF = 0.001μF
103 = 0.01μF

2 2 0 = 22pF
Multiplier
2nd number
1st number

• Temperature coefficient

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	–80	–150	–220	–330	–470	–750

2nd Word	G	H	J	K	L
ppm/°C	±30	±60	±120	±250	±500

Example : CC45TH = –470±60ppm/°C

• Tolerance (More than 10pF)

Code	C	D	G	J	K	M	X	Z	P	No code
(%)	±0.25	±0.5	±2	±5	±10	±20	+40	+80	+100	More than 10μF : –10~+50
							–20	–20	–0	Less than 4.7μF : –10~+75

(Less than 10pF)

Code	B	C	D	F	G
(pF)	±0.1	±0.25	±0.5	±1	±2

• Voltage rating

2nd word / 1st word	A	B	C	D	E	F	G	H	J	K	V
0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0	–
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	–
3	1000	1250	1600	2000	2500	2150	4000	5000	6300	8000	–

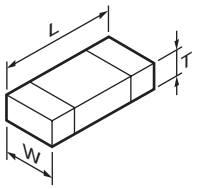
CHIP CAPACITORS

(EX) C C 7 3 F S L 1 H 0 0 0 J
1 2 3 4 5 6 7
(Chip) (CH, RH, UJ, SL)

(EX) C K 7 3 F F 1 H 0 0 0 Z
1 2 3 4 5 6 7
(Chip) (B, F)

Refer to the table above.
1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Voltage rating
6 = Value
7 = Tolerance

• Dimension



Chip capacitor

Code	L	W	T
Empty	5.6±0.5	5.0±0.5	Less than 2.0
A	4.5±0.5	3.2±0.4	Less than 2.0
B	4.5±0.5	2.0±0.3	Less than 2.0
C	4.5±0.5	1.25±0.2	Less than 1.25
D	3.2±0.4	2.5±0.3	Less than 1.5
E	3.2±0.2	1.6±0.2	Less than 1.25
F	2.0±0.3	1.25±0.2	Less than 1.25
G	1.6±0.2	0.8±0.2	Less than 1.0
H	1.0±0.05	0.5±0.05	0.5±0.05

Chip resistor

Code	L	W	T
E	3.2±0.2	1.6±0.2	1.0
F	2.0±0.3	1.25±0.2	1.0
G	1.6±0.2	0.8±0.2	0.5±0.1
H	1.0±0.05	0.5±0.05	0.35±0.05

RESISTORS

• Chip resistor (Carbon)

(EX) R D 7 3 E B 2 B 0 0 0 J
1 2 3 4 5 6 7
(Chip) (B, F)

• Carbon resistor (Normal type)

(EX) R D 1 4 B B 2 C 0 0 0 J
1 2 3 4 5 6 7
(Chip) (B, F)

1 = Type ... ceramic, electrolytic, etc.
2 = Shape ... round, square, etc.
3 = Dimension
4 = Temp. coefficient
5 = Voltage rating
6 = Value
7 = Tolerance

• Rating wattage

Code	Wattage	Code	Wattage	Code	Wattage
1J	1/16W	2C	1/6W	3A	1W
2A	1/10W	2E	1/4W	3D	2W
2B	1/8W	2H	1/2W		

KTC-HR100

SPECIFICATIONS

Analog FM tuner section

Frequency range (200kHz space) ..... 87.9MHz~107.9MHz
Usable sensitivity (S/N=30dB) 9.3dBf (0.8µV/75Ω)
Quieting Sensitivity (S/N=50dB) 15.2dBf (1.6µV/75Ω)
Frequency response (±3dB) ..... 30Hz~15kHz
Signal to Noise ratio (MONO) 70dB
Selectivity (±400kHz) ..... ≧80dB
Stereo separation (1kHz) 40dB

Digital FM tuner section

Frequency range (200kHz space) ..... 87.9MHz~107.9MHz
Frequency response (±3dB) ..... 30Hz~15kHz
Signal to Noise ratio (STEREO) 70dB

Analog AM tuner section

Frequency range (10kHz space) ..... 530kHz~1700kHz
Usable sensitivity (S/N=20dB) 28dBµ (25µV)

Digital AM tuner section

Frequency range (10kHz space) ..... 530kHz~1700kHz
Frequency response (±3dB) ..... 30Hz~15kHz
Signal to Noise ratio (STEREO) 70dB

General

Operating voltage ..... 14.4 V (11~16 V allowable)
Current consumption 500mA
Operating Environment ..... -20°C ~ +70°C
Installation size (W x H x D) ..... 188.5 x 30.0 x 145.5 mm
7-7/16 x 1-3/16 x 5-3/4 in.
Weight ..... 1.65 lbs (750g)

KENWOOD follows a policy of continuous advancements in development.

For this reason specifications may be changed without notice.

KENWOOD CORPORATION
2967-3, Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525 Japan

KENWOOD USA CORPORATION
P.O. Box 22745, 2201 East Dominguez Street, Long Beach, CA 90801-5745, U.S.A.

KENWOOD ELECTRONICS CANADA INC.
6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

KENWOOD ELECTRONICS LATIN AMERICA S.A.
P.O. Box 55-2791 Paitilla, Plaza Credicorp Bank Panama,
Piso 9, Oficina 901, Calle 50, Panama, Rep. de Panama

KENWOOD ELECTRONICS BRASIL LTDA.
Alameda Ministro Rocha Azevedo No. 456,
Edificio Jaú, 10o Andar, Cerqueira César, Cep 0140-001,
São Paulo-SP-Brasil

KENWOOD ELECTRONICS UK LIMITED
Kenwood House, Dwight Road, Watford, Herts, WD18 9EB, United Kingdom

KENWOOD ELECTRONICS DEUTSCHLAND GMBH
Rembrücker-Str. 15, 63150 Heusenstamm, Germany

KENWOOD ELECTRONICS FRANCE S.A.
13, Boulevard Ney, 75018 Paris, France

KENWOOD ELECTRONICS BELGIUM N.V.
Leuvensesteenweg 248 J, 1800 Vilvoorde, Belgium

KENWOOD ELECTRONICS ITALIA S.p.A.
Via G. Sirtori 7/9, 20129 Milano, Italy

KENWOOD IBÉRICA S.A.
Bolivia, 239-08020 Barcelona, Spain

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD. (A.C.N. 001 499 074)
16 Giffnock Avenue, Centrecourt Estate, North Ryde,
N.S.W. 2113, Australia

KENWOOD ELECTRONICS (HONG KONG) LTD.
Unit 3712-3724, Level 37, Tower 1, Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T.,
Hong Kong

KENWOOD ELECTRONICS GULF FZE
P.O. Box 61318, Jebel Ali, Dubai, U.A.E.

KENWOOD ELECTRONICS (THAILAND) CO., LTD.
2019 New Pechburi Road, Bangkapi, Huaykwang, Bangkok, 10320 Thailand

KENWOOD ELECTRONICS SINGAPORE PTE. LTD.
1 Genting Lane, #07-00, Kenwood Building, Singapore, 349544

KENWOOD ELECTRONICS (MALAYSIA) SDN BHD
#4.01 Level 4, Wisma Academy Lot 4A, Jalan 19/1, 46300 Petaling Jaya, Selangor Darul Ehsan,
Malaysia